Municipal Engineers in South Africa before 1910

Harri Mäki

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Introduction

When one looks at the municipal histories in South Africa one has to look hard, mostly in vain, to find any mention about engineers. One will probably find names of mayors and often also medical officers of health. Under each mayor are listed all the building projects done under their mayoralty but where are the men who were mostly responsible for realising these projects? If questioned many would affirm the importance of these practitioners and understand that they shape the society. The history of public works has been important part on histories written about South African municipalities, but the engineers responsible for them have not been in a focus. This book is going to do that.

This book is by no means comprehensive; there is a lot of information missing. There is a conscious effort to concentrate only to the top official of municipal public works departments, namely municipal/town/borough/city engineer; all four versions were in use during the time period examined. I will use the term town engineer for all these variants. This official was responsible for all the public works under municipal governance. In some cases, there was, for instance, a private company taking care of water supply, which relieved the town engineer of that responsibility. I have ruled out all other engineers working for the municipalities; there were separate electrical engineers, water engineers and sewerage engineers, who in most cases were working under the town engineer. In some cases, a municipality even had one of these without having a town engineer; all these cases are also ruled out. In some cases municipalities had the same person acting as town clerk and town engineer, or even treasurer; these cases were considered when known. There are some cases where I have broken these guidelines; for instance in Uitenhage I have also examined the first two superintendents of works because they were professional engineers and even referred to as town engineers in the town council minutes.

There had been some municipal engineers before the time period covered by this book. For instance, Henrik Oldenland, the superintendent of the Company's garden and land surveyor for the government, was apparently promoted to be the first town engineer of Cape Town as early as 1693.[1] This research, however, starts from the 1850s after the creation of the first municipalities in the Cape Colony a decade earlier. The end point of the research is the creation of the Union of South Africa in 1910. It could be argued that the Anglo-Boer War would have been more valid ending point, but I decided to extend the research period for ten more years because otherwise the number of municipalities and engineers in the research would have been dramatically reduced and two former Boer republics would have been practically left out.

The main sources for this research have been the minutes of the various municipal boards, like the town council, the public works committee etc. Municipal yearbooks and mayoral minutes were also used where possible. Most of these materials can be found in the national and provincial archives in South Africa; I visited archives in Pretoria, Bloemfontein, Cape Town, Pietermaritzburg and Durban. Unfortunately, the archives were missing materials from municipalities like Volksrust, Newcastle, Ladybrand and Aliwal North. The local newspapers would have been a good source but unfortunately there was no possibility to go through them systematically. For biographical information, important sources were the archives of the Institutes of the Civil and the Mechanical Engineers in London. For research purposes almost all the municipalities included were visited; Beaufort West, Queenstown, Aliwal North, Ladysmith, Ladybrand and Kroonstad were the only municipalities that could not be visited.

In the first chapter, I will go through the developments from the 1850s to the 1900s by decades. This is the chronological part of the book, the remaining chapters are thematical. In chapter two, I will analyze the background and training of the engineers. I will also look at the positions they had before they were appointed as town engineers. Chapter three will deal with the reasons why municipalities decided to appoint a town engineer. The next chapter will deal with the application process. In chapter five, I analyze the appointment process in municipalities, how and where the position was advertised, how the final candidates were selected and what was the procedure in the town councils. In

[1] Theal, 1888, 7.

chapter six, I discuss the salaries of the engineers and make comparisons between different municipalities. Chapter seven will look at the relations between town engineers and political leadership of municipalities. In chapter eight, the focus is on the end of the engineers' tenures, why and in which way they left the position. The final chapter looks at the effects of the economic depressions of the 1860s, 1880s and 1900s on engineer's departments. In the appendix, I have collected biographical information on all the engineers under examination.

In 1908, R.O. Wynne-Roberts, former city and water engineer of Cape Town, gave an interesting presentation at the Royal Sanitary Institute about his experiences as colonial municipal engineer.[2] According to him, the healthy climate, the dry atmosphere, and the character of the people were reasons why many necessary public works were delayed in South Africa. The important part of the engineer's work was to carry out his own surveys, and make his own maps and plans. According to him, this took a lot of effort and entailed many difficulties. For instance, the ratepayers objected to any proposal that meant expenditure and increase in the annual rates. He emphasised that the main difficulties to be overcome in municipal works were those caused by droughts, floods, and cost. Droughts were sometimes extending so long that they rendered the water supply very precarious, causing problems, for instance, for the flushing of sewers. Abnormal rainfalls causing floods created problems for water engineers and people connected with railways, roads, and irrigation. The question of the cost of these works was also important since almost all the materials had to be imported. Wages and the cost of supervision were high. In addition, obtaining trained and qualified municipal assistants was difficult. Competent engineers often lacked the necessary experience. The engineers in bigger towns also had to design and execute a great variety of difficult schemes, like African locations, electric light stations, waterworks, and street improvements. The distances between principal towns were great and the cost of travelling expensive. Consequently, municipal engineers had few opportunities to meet and discuss subjects of mutual interest. In many places, councillors also had short terms of service, which, according to Wynne-Roberts, had a detrimental effect on the general policy implementation. For example, a scheme is advocated one year, but then when new members are elected to the council, the policy is changed and the scheme is dropped. To summarise, Wynne-Roberts said that in the new countries, the engineer finds

[2] Wynne-Roberts, 1908.

that the field for development is large, and that he has many opportunities to demonstrate his value, power, and independence. It is an excellent school for the development of the qualities of self-confidence and tact.

Nevertheless, I have to stress that this is not a study of what engineers achieved when they were town engineers in their respective municipalities. This research focuses on the engineers themselves, where they came from, their background, how they were selected, how they left the position and where they went.

I am deeply grateful for personnel in various archives and libraries both in South Africa and the United Kingdom for their help in finding the material for the research. There are too many of them to be mentioned here. During my trips around South Africa, I also met many interesting and helpful persons in places I was staying. The hospitality towards a foreign visitor who was interested in their home town and who always wanted to walk everywhere was heart-warming. For valuable comments towards my text, I am deeply in debt for Professor Johannes Haarhoff of the University of Johannesburg and Professor Johann Tempelhoff of the North-West University. In Finland, Associate Professor Petri Juuti had been a valuable asset both as a critic and a friend. Funding of this research has been provided by the Finnish Cultural Foundation, the Jutikkala Fund and the Ella and Georg Ehrnrooth Foundation.

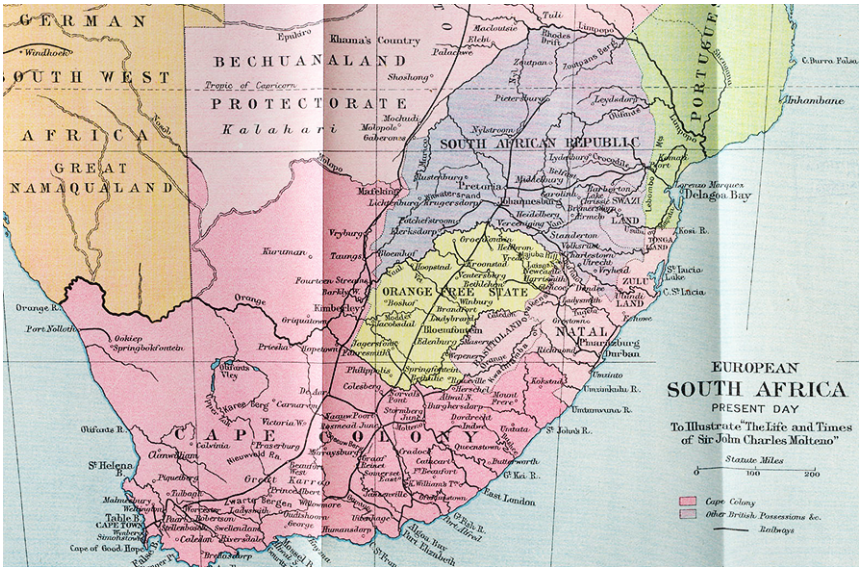

Figure 1. South Africa in the 1890s. (Molteno, 1900)

1 Outline of developments

This chapter focus on decade by decade development of the municipal engineers. In the last decade, the presentation will be split by the provinces. Some attention will be paid also to the overall municipal developments in the area during the examination period.

Beginning in the 1850s

The first municipalities were created in the Cape Colony in the 1830s.[1] At the beginning of the 1850s, there were already 14 municipalities. During the decade,

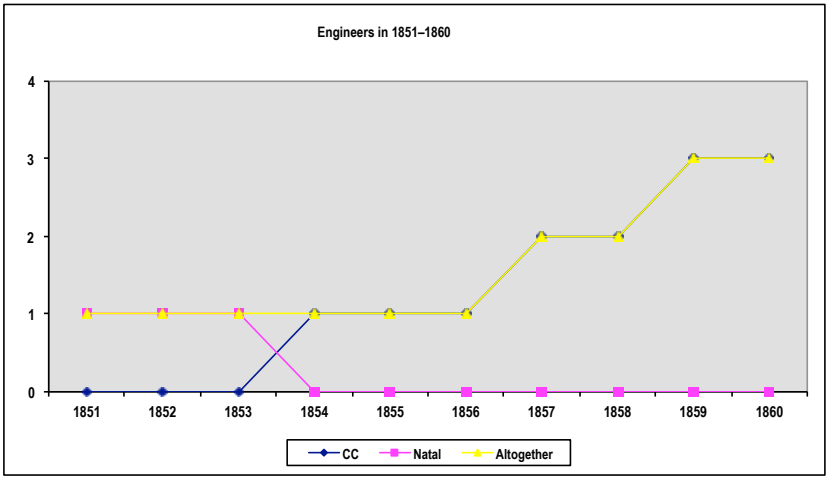

Figure 2. Number of engineers in 1851–1860.

[1] Green, 1957, 16–21.

nine more were established. Outside of the Cape Colony, the first municipalities were also created in Natal and the Orange Free State, two in each. During this decade, the first municipal engineers were appointed, in Cape Town, Port Elizabeth and Grahamstown in the Cape Colony, and in Pietermaritzburg in Natal. (See Figure 2.) It is very easy to explain the three appointments in the Cape Colony. Cape Town was the main urban centre of the colony, and Grahamstown and Port Elizabeth were the most populous centres of the Eastern Cape. Pietermaritzburg is more difficult to explain and this question will be considered later in Chapter 3.

The first municipal engineer in South Africa is usually said to be Woodford Pilkington (1831–1913) in Cape Town in 1854. There is, however, a strong contender. Hughbert Baker (1816–1873) was appointed as town surveyor and engineer for Pietermaritzburg in July 1851. He did not get a salary, but was paid by commission per survey performed. His initial contract was for one year, but there are surveys bearing his signature as town surveyor as late as May 1853. In June of that year, he left for Australia. Calling Baker the first municipal engineer is still a bit controversial because he was a surveyor by training and it is not known whether he was responsible for any engineering works during his stay in Pietermaritzburg.[2]

Of Woodford Pilkington, on the other hand, there is no question. He had been trained as a civil engineer by his father and had come to Cape Town in 1850 to work in the Colonial Engineer's Department. In April 1854, he was appointed as the first town engineer of Cape Town at the age of only 23.[3] Pilkington resigned 18 months later after getting a better job from the Colonial Engineer's Department in the Eastern Cape.[4]

Unlike in Pietermaritzburg where it took a decade to appoint the next engineer, the Cape Town commissioners started immediately to search for a new engineer. After an application process, James Cameron (1800–1875) was appointed in January 1856.[5] He was a strange choice. Cameron had studied mathematics and chemistry at the University of Perth in Scotland but had been apprenticed to a carpenter. After that, he worked as missionary in Madagascar until 1836, when

2 Meineke & Summers, 1983, 14–15.
3 WCPA, 3/CT 1/1/1/15, Board of Commissioners meeting, 26.4.1854.
4 WCPA, 3/CT 1/1/1/16, Board of Commissioners meeting, 5.12.1855.
5 WCPA, 3/CT 1/1/1/16, Board of Commissioners meeting, 9.1.1856.

he came to Cape Town.[6] Cameron had to agree to qualify himself as sworn land surveyor within five months before the appointment was permanent.[7] He also stayed in office for 18 months before resigning in September 1857.[8] Cameron had a row with the commissioners about the condition of streets and had been told that he had to pay damages for one cart from his own pocket.[9]

This time the committee of public works asked local engineer Peter Penketh (1816–unknown) to superintend several public works until a permanent town engineer could be appointed.[10] Penketh, who had earlier already applied twice for the position, was appointed after an application process in November.[11] He started officially in January 1858 and continued in office until February 1872 when he resigned for health reasons.[12] He had already been on sick leave few times before that.

During the 1850s, town engineers were also appointed for Port Elizabeth and Grahamstown. In Port Elizabeth, the time of the appointment for the first engineer, certain Mr. Grey, is unclear. He was, however, dismissed in November 1857 because he had not been giving all the aid expected to the Board of Commissioners.[13] The position was then offered to a local civil engineer, Robert Archibald (1812–1867), who accepted the offer.[14] Archibald stayed in office until his death from injuries after falling off a horse in 1867.[15]

In Grahamstown, the need for a proper survey and supervision of the building of the Grey Reservoir led to the appointment of an engineer and surveyor by the municipality in 1859. After strong recommendations, the person appointed was Robert Hoggar.[16] He resigned in August 1861 after claiming that his remuneration was not enough to support his family.[17] After this, Grahamstown relied on inspector of works as head of public works until 1879.

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6 Murray, 2009, 40-41
7 WCPA, 3/CT 1/1/1/16, Board of Commissioners meeting, 9.1.1856.
8 WCPA, 3/CT 1/1/1/17, Board of Commissioners meeting, 23.9.1857.
9 Murray, 2009, 42; Jordaan, 1969, 143–150.
10 WCPA, 3/CT 1/1/1/17, Board of Commissioners meeting, 14.10.1857.
11 WCPA, 3/CT 1/1/1/17, Board of Commissioners meeting, 18.11.1857.
12 WCPA, 3/CT 1/1/1/23, Town Council meeting, 8.2.1872.
13 WCPA, 3/PEZ 1/1/1/2, Board of Commissioners meetings, 18. and 25.11.1857.
14 WCPA, 3/PEZ 1/1/1/2, Board of Commissioners meeting, 16.12.1857.
15 Raymer, 2008, 158.
16 WCPA, 3/AY 1/1/1/5, Board of Commissioners meeting, 28.1.1859.
17 WCPA, 3/AY 1/1/1/6, Board of Commissioners meeting, 16.8.1861; Gibbens, 1982, 149.

1860s in the shadows of depression

During the 1860s, the number of municipalities in the Cape Colony rose from 23 to 31 and in the Orange Free State from two to four. In Natal, there were still two municipalities and in the Zuid-Afrikaanse Republiek there were municipal experiments in Potchefstroom and Pretoria.[18] The number of municipal engineers, however, at the end of the decade was lower than in the beginning. (See Figure 3.) In the Cape Colony, there were three new municipalities having an engineer during this decade, namely King Williams Town, Graaff-Reinet and Beaufort West. By the end of the decade, however, only Cape Town and Beaufort West are known for certain to have engineers in their employment. Pietermaritzburg also had an engineer for a few years during this decade.

The first new engineer appointed in the 1860s was R.S. Webb in King Williams Town. Webb was appointed as town clerk in early 1861. By October of the same year, he was also appointed to the post of treasurer and in August 1862, he got a further appointment as borough engineer. In December 1865, a separate treasurer was appointed. Webb, however, continued in his double role as town clerk and borough engineer until January 1869. He resigned after his salary was

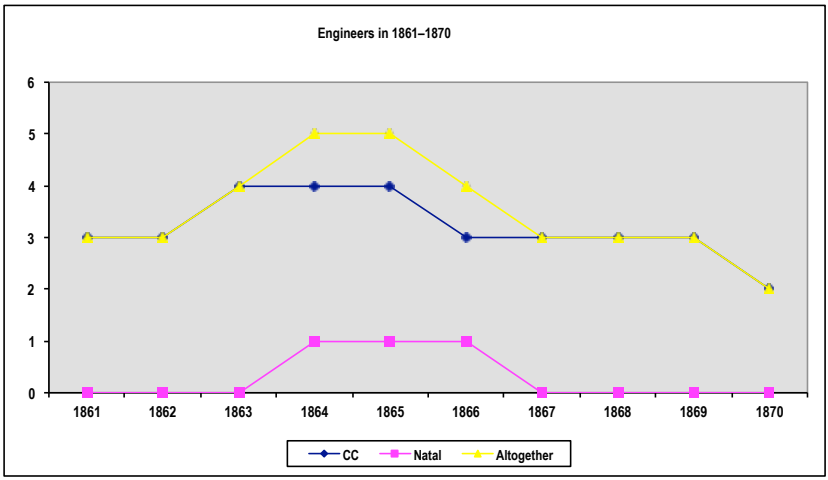

Figure 3. Number of engineers in 1861–1870.

[18] Green, 1957, 52–53.

cut by £25. It is not known whether a new borough engineer was appointed after Webb's resignation.[19]

Graaff-Reinet also had a combined town clerk, treasurer and engineer in the 1860s. W.L. Mackie was appointed to this triple role in 1863. There is no proof of R.S. Webb's engineering skills but Mackie had at least some; he developed Mackie's Pit as a water source for the town. Otherwise his two years in Graaff-Reinet were quite controversial. Mackie was an English-speaking bachelor in a very conservative town where most of the residents could not speak English. The final straw was a dispute with the chairman of the municipal board about salary reductions and Mackie was dismissed in June 1865. The next engineer was only appointed in 1881.[20]

In Pietermaritzburg, the absence of competent engineering advice and supervision was remarked upon time and again after Hughbert Baker's resignation in 1853. In 1857, the town council resolved to seek the services of both surveyor and engineer or a combination of these two. Despite the fact that two of the three applicants claimed to be engineers, the council appointed John Moreland only as borough surveyor in October 1857.[21] In 1864, the town council finally decided that it was a time to appoint an engineer as well. The original decision was to have a separate engineer and surveyor, but the final decision was to appoint George Pigot Moodie (1829–1891) in both positions.[22] However, a depression started soon afterwards and in February 1866 Moodie was given a notice for his dismissal. He asked for a reconsideration of the matter, and Finance and Survey Committees recommended that he is retained but only as a surveyor.[23] Apparently Moodie resigned this position later that year since a new surveyor was appointed in October.[24] The next engineer was appointed in 1882.

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19 Bateman, 1961, 9–13.

20 Henning, 1975, 73–74; Minnaar, 1987a, 14–15; Minnaar, 1987b, 24.

21 Meineke & Summers, 1983, 15.

22 NAB, 3/PMB 1/1/3, Town Council meeting, 9.3.1864.

23 NAB, 3/PMB 1/1/4, Town Council meetings, 7.2. and 7.3.1866.

24 NAB, 3/PMB 1/1/4, Town Council meeting, 11.10.1866; About Moodie's later career in the Transvaal see Davey, 1973; There is also a chapter on Moodie in Dictionary of South African Biography, but that does not even mention his time in Pietermaritzburg. DSAB I, 1968, 557–558.

Figure 4. Avon Bruce-Brand, town engineer of Beaufort West, 1869–1877. (Vivier, 1968, 29)

Avon Bruce-Brand[25] (1843–1914) was a town engineer of Beaufort West from 1869 to 1877.[26] He was dismissed after the Springfontein Dam was finished. Bruce-Brand (See Figure 4) was a single experiment in Beaufort West in the 19th century; its next town engineer was appointed only in the 1920s.

In Port Elizabeth, George William Smith (1838–1931) was possibly appointed as an acting town engineer after Robert Archibald's accidental death in 1867. This is not certain since there is only one source that mentions this.[27] Anyway, Smith could not have been in this position for a long since in 1868 he left for Australia. Port Elizabeth appointed its next town engineer in 1881.

1870s at the mercy of the town council

The number of municipalities in the Cape Colony and the Orange Free State continued to rise during the 1870s. In the Cape Colony, there were seven new municipalities raising the total number to 38 and in the Orange Free State eight new municipalities tripling the number to 12. In the Zuid-Afrikaanse Republiek, municipal regulations were gazetted for four new municipalities.[28] The number of municipal engineers nevertheless stayed in a low level. (See Figure 5.) After the municipal engineer was dismissed in Beaufort West in 1877, the only engineer was James Tennant in Cape Town until 1879, when there were engineers also in Grahamstown and King Williams Town.

Cape Town had difficulties getting an engineer until the early 1880s after Peter Penketh's resignation in 1872. In March 1872, the town council appointed

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25 I'm grateful for Pamela Bruce-Brand for most of the information concerning her husband's forefather.

26 Vivier, 1969, 25–26; History of Beaufort West, 4.

27 Anon., 1976, 7.

28 Green, 1957, 54.

James J.A. Flower (1847–1888) as a new engineer.[29] At the time of his appointment, Flower was in London and during the next months he did not show any intention for returning to Cape Town. Flower finally resigned in February 1873 without visiting Cape Town at all for his whole year as town engineer.[30]

The process for appointing a new engineer continued until the end of August 1873. In July, Joseph Flack[31] was appointed but informed the town council in August that under the circumstances he could not accept the office.[32] The council revisited the previous applications and chose Charles Rees as their engineer.[33] All was well until the town council found out in November 1874 that Rees was also getting a salary from the Royal Engineers. Rees was confronted with the matter and because he refused to resign from the Royal Engineers, the town council dismissed him. Nevertheless, they appointed him as acting town

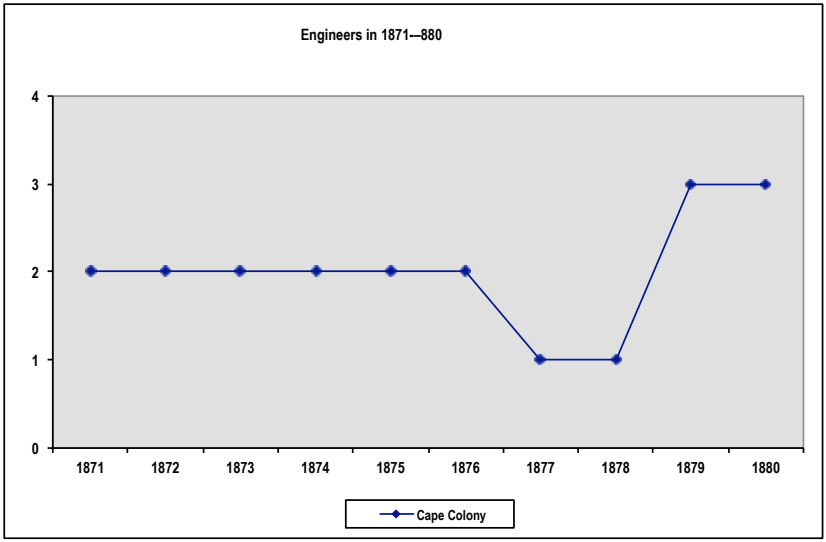

Figure 5. Number of engineers in 1871–1880.

[29] WCPA, 3/CT 1/1/1/23, Town Council meeting, 6.3.1872.
[30] WCPA, 3/CT 1/1/1/24, Town Council meeting, 12.2.1873.
[31] Flack came form Maidstone, Kent. He was employed by the Cape Colonial Government and was involved in building for instance Robben Island and the Cape St Francis lighthouses. He died in 1876.
[32] WCPA, 3/CT 1/1/1/24, Town Council meetings, 4.7. and 15.8.1873.
[33] WCPA, 3/CT 1/1/1/24, Town Council meeting, 29.8.1873.

engineer until the new one was elected.[34] The new appointment was discussed in September 1875 and the Special Joint Committee recommended that Rees should be appointed if he would immediately resign from the Royal Engineers. If Rees would not resign, then Charles Hanson from the Railway Engineer's Department should be appointed. The town council, however, decided that the appointment should stand for six months, and that Rees be requested to continue as acting town engineer.[35] In January 1876, the town council decided to call for new applications since Rees' situation had not changed.[36]

In March 1876, the town council finally managed to appoint the next town engineer. The Joint Committee recommended the appointment of A.J. McAndrew but the town council decided to appoint James Tennant (unknown–1913).[37] Tennant apparently had problems with the town council during his four years as city engineer.[38] In September 1880, he sent a letter to the town council informing them that he intended to resign upon the completion of the new reservoir.[39] Two months later he informed the town council that he had been called up for active service with the Volunteer Engineers and asked leave of absence, which was granted.[40] Tennant resigned during his service in the Basotho War.

In Grahamstown, the accumulation of public works compelled the town council in 1879 to decide to appoint a competent engineer, especially to supervise the building of a new town hall.[41] Of the 15 applications, the one chosen was Arthur Henry Reid (1856–1922), the assistant town engineer of Cape Town.[42] A night before the new town hall (See Figure 6) was opened in May 1882, the town council moved that the services of Reid were no longer required and he was given three month's notice.[43] After this, Grahamstown was again satisfied with only an inspector of works, until the 20th century.

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34 WCPA, 3/CT 1/1/1/26, Town Council meetings from 25.5.1874 onwards.
35 WCPA, 3/CT 1/1/1/27, Town Council meeting, 8.9.1875.
36 WCPA, 3/CT 1/1/1/27, Town Council meeting, 26.1.1875.
37 WCPA, 3/CT 1/1/1/27, Town Council meeting, 8.3.1876.
38 Tennant was the first municipal engineer in Cape Town to use the designation city engineer.
39 WCPA, 3/CT 1/1/1/31, Town Council meeting, 22.9.1880.
40 WCPA, 3/CT 1/1/1/31, Town Council meeting, 3.11.1880.
41 Gibbens, 1982, 154–155.
42 WCPA, 3/AY 1/1/1/10, Town Council meeting, 19.11.1879.
43 WCPA, 3/AY 1/1/1/10, Town Council meeting, 3.5.1882.

Figure 6. New town hall of Grahamstown. (Grocott & Sherry's Album of Grahamstown, 1898)

There are also two unsure engineers in the late 1870s. Alan Greaves in his book *Tell Me of Komani…* writes that:

> the first town engineer of Queenstown is believed to have held office shortly after the town had been accorded full municipal status in 1879. Among the municipal records is a building plan dated 12 July 1881 and signed "Chas. B. Hensham, Resident Town Engineer."[44]

This is the only mention of Hensham I have been able to find so far. The other elusive engineer is C. Grellert in King Williams Town whose name was mentioned in the 1879 edition of the Cape General Directory.[45]

Stagnation in the 1880s

The number of municipalities in the Cape Colony in the 1880s expanded considerably; during the decade 27 new municipalities were established. In other parts of South Africa, the development was not similar, in Natal there was one new municipality, Ladysmith, and in the Orange Free State, two. In the Zuid-Afrikaanse Republiek, the municipal experiments of the previous decades

[44] Greaves, 1987, 198.
[45] General Directory, 1879.

withered away.[46] This increase in the number of municipalities did not cause an increase in the number of municipal engineers. (See Figure 7.) In the Cape Colony, there were five engineers in 1881 and two in 1890. Only Cape Town is known for certain to have an engineer during the whole decade. King Williams Town had an engineer in 1880–1888, Grahamstown until 1882, East London in 1881–1885, Graaff-Reinet in 1881–1884, Port Elizabeth had an engineer in 1881 and an unofficial engineer from then on until 1886, and in Kimberley there was one from 1887 onwards. There were also part-time engineers in Green Point and Sea Point, which are not presented in Figure 7. In Natal, both old municipalities, Pietermaritzburg and Durban, appointed an engineer in 1882. In Pietermaritzburg, the engineer lasted this time for one year, but in Durban they had a municipal engineer from this year onwards. In the Zuid-Afrikaanse Republiek, the first municipal engineer was appointed in 1889 in Johannesburg. At the time, Johannesburg was not a municipality, but the area had been proclaimed as public diggings by the government and was ruled by a sanitary board.

In Cape Town, E.B.J. Knox (1845–1903) worked as acting city engineer for a few months after Tennant's resignation. A new city engineer was elected in

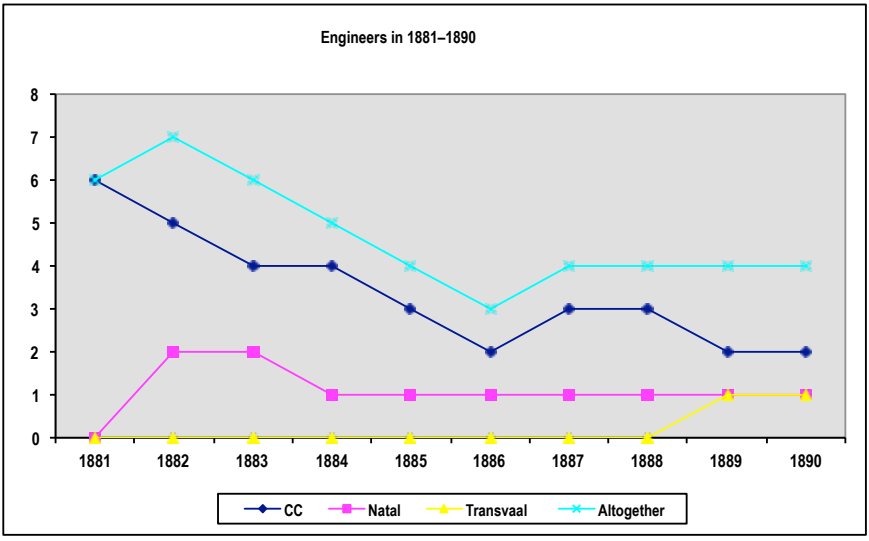

Figure 7. Number of engineers in 1881–1890.

[46] Green, 1957, 56–60.

February 1881. After a town council ballot, J. Stuart Swallow (1849–1890), district engineer from the Cape Government Railways, was appointed. An interesting observation is that, after all the trouble during the preceding years, the two previous town engineers, Charles Rees and James Tennant, also received votes.[47] Swallow lasted in office for 13 months. He had problems with the press within weeks of his appointment, being blamed for overspending money. By March 1882, he refused to attend the meetings of the public works committee and very soon resigned.[48] The assistant city engineer, Thomas W. Cairncross (1845–1918), was now appointed first as acting city engineer and then in August as city engineer.[49] (See Figure 8.)

In King Williams Town, F.J. Holman was both town clerk and town engineer in 1880–1881. Information on him is rather skimpy but we have more information on his successor. In February 1881, William Dunbar (unknown–1926) was unanimously appointed as town clerk and engineer for King Williams Town.[50] Dunbar resigned in 1888 after his water schemes were criticised.[51] There was a succession of engineers from the time Dunbar left until James Maden (1879–

Figure 8. The intake works on the Disa Gorge side of the Woodhead tunnel. T.W. Cairrncross, city engineer of Cape Town, standing right on the log and Thomas Stewart on the left. (Waterworks Museum, Cape Town)

47 WCPA, 3/CT 1/1/1/31, Town Council meeting, 2.2.1881.
48 WCPA, 3/CT 1/1/1/32, Town Council meeting, 8.3.1882; Van Heyningen, 1989, 259–260.
49 WCPA, 3/CT 1/1/1/33, Town Council meeting, 23.8.1882.
50 WCPA, 3/KWT 1/1/1/9, Borough Council meeting, 22.2.1881.
51 Nelson, 1979, 18–19.

1930) was appointed in 1903.[52] I have not been able to confirm any names until 1893.

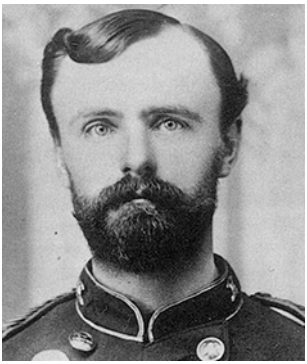

Figure 9. William Henry Miles, engineer for the municipality of Port Elizabeth, 1881–1886, and town engineer of Johannesburg, 1889–1892. (Grant & Flinn, 1992, 125)

In Port Elizabeth, the municipality decided to advertise the position of town engineer in 1881 after the position had been vacant for 14 years. After going through over 100 applications, the council appointed John Hamilton Wicksteed (1851–1881), the water engineer of the municipality. Wicksteed resigned only four months later, in August 1881. It seems that the stress of the position was too much for him and he committed a suicide soon afterwards.[53] After Wicksteed's resignation, the town council appointed local engineer William Henry Miles (1857–1893) as municipal architect and engineer for the municipality. Miles (See Figure 9) continued in that position until 1886, when he resigned and returned to England.[54] After Miles' departure, the next town engineer was appointed 11 years later in 1897.

In March 1881, both East London and Graaff-Reinet appointed town engineers. In East London, the municipal council decided to combine offices of town clerk, treasurer and newly-established engineer. George Frederick Newsam (1846–1890), who already had been town clerk since 1875, was appointed to these offices.[55] In 1882, the offices were separated again and Newsam continued only as town engineer. The reason for this separation was the start of construction work on the Amalinda Water Scheme. The recession starting in 1884 caused first the reduction of the town engineer's salary in 1884, and later the abolishment of the office in April 1885.[56] The next engineer was appointed 12 years later in 1897.

In Graaff-Reinet, the building of a new water supply system was a direct reason for appointing a town engineer. From the six applicants, the town

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52 Nelson, 1979, 19.

53 Raymer, 2009, 56–57; Herholdt, 1987, 3; Wicksteed, 1883, 232–233.

54 Institute of the Mechanical Engineers, William Henry Miles, Proposal for Associate Membership, 6.5.1889.

55 WCPA, 3/ELN 1/1/1/4, Municipal Council meeting, 10.3.1881.

56 WCPA, 3/ELN 1/1/1/6, Municipal Council meeting, 29.4.1885; Tankard, 1991, 81.

council selected Humphrey Henchman (unknown–1950) in March 1881.[57] He immediately encountered similar problems to those of his predecessor, W.L. Mackie, 16 years earlier. Some of the town councillors objected the appointment because of the expenses and the first proposal for his dismissal was made already seven months after the appointment.[58] Henchman became the target of abuse, insult and humiliation; the opponents of the water supply scheme did all they could to stop the scheme. Henchman, however, saw the scheme through before he resigned in October 1884.[59] It took 17 years for Graaff-Reinet to appoint the next town engineer.

In Natal, Durban appointed its first borough engineer in 1882. From a large number of candidates,[60] John F.E. Barnes (1851–1925), government surveyor for the Colony of Natal, was appointed in January.[61] Barnes (See Figure 10) resigned on 31 December 1887 to apply for the post of the assistant colonial engineer and surveyor general.[62] After Barnes' resignation, W.E. Robarts (1853–1903), who had been borough surveyor in the 1870s, was appointed consulting borough engineer.[63] He resigned in February 1889 and William Watts Cato (1849–1915) was appointed acting borough engineer.[64] A new borough engineer, John Fletcher (1858–1938), borough engineer of Sutton Coldfield in Warwickshire, was appointed only in April 1889.[65] He was appointed mainly because of his experience in carrying out

Figure 10. John F.E. Barnes, borough engineer of Durban, 1882–1887. (Natal Mercury Christmas Annual 1886)

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57 WCPA, 3/GR 1/1/1/6, Town Council meeting, 25.3.1881.

58 *The Graaff-Reinet Herald*, 30.4.1881; WCPA, 3/GR 1/1/1/6, Town Council meeting, 24.10.1881.

59 Henning, 1975, 87–88.

60 Total number is not mentioned anywhere, but there are 22 applications among the received letters of town clerk in TBD, 3/DBN, 2/1/1/30.

61 TBD, 3/DBN 1/1/1/1/16, Town Council meeting, 17.1.1882; Barnes, 1886, 32; Lynsky, 1982, 16.

62 TBD, 3/DBN 1/1/1/1/19, Town Council meeting, 6.10.1887.

63 TBD, 3/DBN 1/1/1/1/19, Town Council meeting, 7.12.1887.

64 TBD, 3/DBN 1/1/1/1/20, Town Council meetings, 26.11.1888 and 7.3.1889.

65 TBD, 3/DBN 1/1/1/1/20, Town Council meeting, 4.4.1889.

water and sewerage schemes.[66] Fletcher stayed in office until 1918, when he had to resign because of health reasons.[67]

Pietermaritzburg also decided in September 1882 that they need again an engineer. In November, the town council appointed Charles Henry Richards[68] from 24 applicants.[69] In August 1883, the council, however, embarked upon some drastic economy measures. Richards was given notice that his services were no longer needed after September.[70] This time the next engineer was appointed only ten years later in 1893.

Sometimes during the early 1880s the municipality of Green Point and Sea Point decided to appoint a part-time municipal engineer. The first engineer was apparently George Ransome (1852–1910), who was in that position at least from 1884 to 1887.[71] After him, there was P. Oliver from 1887 to 1893.[72]

The two important new urban centres of Kimberley and Johannesburg also appointed their first town engineers in the 1880s. In Kimberley, the title of clerk of works, Thomas Callen (1857–1938), was changed to that of borough engineer in February 1887.[73] There was nothing sinister in this, as Callen was a competent engineer and surveyor, and the change was in accordance with his qualifications. He worked in Kimberley until his retirement after 32 years as town engineer at the end of 1919.[74]

In Johannesburg, William Henry Miles was appointed as the first town engineer in November 1889.[75] In July 1892, Miles was dismissed by the sanitary board for alleged serious neglect of duties in his capacity as town engineer.[76]

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66 Durban, Mayor's Minute, 1890, 2.

67 TBD, 3/DBN 1/1/1/1/37, Town Council meeting, 5.4.1918.

68 Richards is one of those engineers of which no personal information have been found. There is, however, Charles Richards as borough surveyor of Durban in 1881–1882. He might be a same person.

69 NAB, 3/PMB 1/1/5, Town Council meeting, 27.11.1882.

70 NAB, 3/PMB 1/1/6, Town Council special meeting, 14.8.1883.

71 Murray, 2000, 24.

72 WCPA, 3/GSP, Town Council meetings, 1887–1893.

73 WCPA, 3/KIM 1/1/1/1, Town Council meeting, 23.2.1887.

74 WCPA, 3/KIM 1/1/1/16, Town Council meeting, 19.11.1919.

75 'The New Town Engineer', *The Star*, 27 November 1889. This was seen as so important an occasion that *The Star* wrote an editorial about the new appointment: 'The Man who Makes a Town', *The Star*, 12 December 1889.

76 'The Death of Mr W.H. Miles', *The Star*, 4 March 1893; Appelgryn, 1971, 173; Shorten, 1986, 17.

Thomas Stewart (1857–1942) in Wynberg is an interesting case. He was appointed in September 1887 as engineer for the water scheme and after that continued as consulting engineer for Wynberg for a few decades.[77] In some sources, he is called a municipal engineer, in others waterworks engineer.[78] If he had an official position, I have not been able to find any mention when this was terminated. The first official town engineer was appointed in 1900.

Steady growth in the 1890s

The number of municipalities steadily grew during this decade. In the Cape Colony, the number of municipalities grew from 65 to 88 and in the Orange Free State from 14 to 26. In Natal, one new municipality, Newcastle, was established and in the Zuid-Afrikaanse Republiek, Johannesburg and Pretoria received municipal rights. During this time, the number of municipal engineers kept pace by increasing from four in 1891 to 17 in 1900. (See Figure 11) Most of this increase

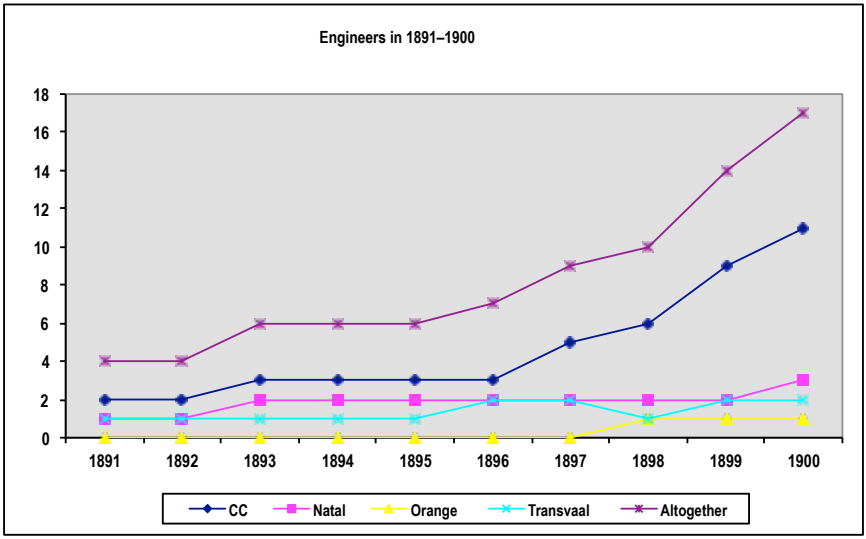

Figure 11. Number of engineers in 1891–1900.

[77] WCPA, 3/WBG 2, Town Council special meetings, 1.9. and 10.9.1887.

[78] Wynberg Times, 15.9.1887; Robinson, 1998, 145–147; Report of the Select Committee on the Wynberg Drainage Bill, 1898, 6.

was in the Cape Colony where the number increased from two to 11. It seems that especially the demands of the Anglo-Boer War caused some municipalities to appoint an engineer since there were still only six engineers in 1898. In the other parts of the South Africa, there were also slight increases in the number of engineers. In Natal, there were three engineers in 1900; the appointment in Newcastle during that year can be directly connected to the war. [79] In the former Zuid-Afrikaanse Republiek, there were engineers in both Johannesburg and Pretoria at the end of the decade. And finally in the Orange Free State, the first municipal engineer, H.F. Peet, was appointed in Bloemfontein in 1898.[80]

In the beginning of the 1890s, we have another mysterious engineer in Queenstown. Greaves writes, "Another plan, dated 11 July 1891, carries the signature of 'R.W. Wright, Civil Engineer', but whether he was town engineer at the time is not known".[81] The only information I have been able to find is that there was a surveyor of that name working in the Eastern Cape in the late 19th century, so I think it is highly unlikely that he was a town engineer of Queenstown. The first confirmed town engineer for Queenstown was William Arthur Palliser (1870–1942), appointed in May 1899.[82] He resigned at the beginning of January 1901 after being appointed to the position of town engineer of East London.[83]

In Johannesburg, after Miles' dismissal in 1892, the engineering work was undertaken by the private practice of E.B.J. Knox and George R. Grey (1848–1928); the two engineers were alternating as town engineer.[84] On December, Grey was unanimously chosen as a new engineer from the 15 applicants.[85] He, however, did not last long in office. In March 1893, he was accused of corruption and ordered to resign.[86] This time the sanitary board did not take long to appoint a new engineer. There were 33 applications within a week and the appointment went to Charles Aburrow (1852–1933) in April.[87] Aburrow stayed in office until

79 Baylis, 1951, vol. 3, 5.

80 VAB, MBL 1/1/1/9, town council meeting, 21.7.1898.

81 Greaves, 1987, 198.

82 WCPA, 3/QTN 1/1/1/9, Report of Committee appointed to consider applications for the post of Town Engineer, 11.5.1899.

83 WCPA, 3/QTN 1/1/1/9, Town Council meeting, 28.12.1900.

84 Shorten, 1986, 17.

85 *The Star*, 2 December 1892; Appelgryn, 1971, 192.

86 NASA, TAB, SS 3727, R5089/93, Extract uit de Notulen van byeenkomst van het Gesondheids Comité, 10.3. and 17.3.1893; 'The Town Engineer – A Curious Business', *The Star*, 11.3.1893; 'The Town Engineer', *The Star*, 17.3.1893.

87 *The Star*, 25 March 1893; NASA, TAB, SS, 3727, R5089/93, Extract uit de Notulen van

May 1901, through most of the Anglo-Boer War. The new administration informed him that they could not allow him to remain in office and dismissed him.[88]

Pietermaritzburg appointed a borough engineer in 1893 after a break of ten years. The town Council changed the designation of Edward Harrison (1860–1947) from clerk of public works to borough engineer and overseer of waterworks. This proved not to be a good solution, since Harrison was a land surveyor, not a qualified engineer.[89] Criticism against Harrison grew until the council decided at the end of 1895 to advertise for a qualified engineer and demoting Harrison to "assistant engineer". The council appointed Arthur H. Waller (1867–unknown), the assistant borough engineer of Durban, who started at the beginning 1896.[90] Waller lasted two years in office until he clashed with the works committee and resigned in May 1898.[91] This time, the position was advertised and the town council received fifty applications, of which thirty were from Britain. Of the four final candidates, one chosen was George Bastable Laffan (1851–1919), district engineer of Twickenham. According to the London Committee, the age of Laffan (See Figure 12) was no problem, since "he is a strong, healthy looking man".[92] Laffan was engaged on a three years contract but did not fare any better with the local politicians than his predecessor and his contract was not renewed in 1901.[93]

Figure 12. George B. Laffan, borough engineer of Pietermaritzburg, 1898–1901. (*Twentieth-Century Impressions*, 1906)

In King Williams Town in 1893, basically the same thing happened as in Pietermaritzburg. In August, the designation of John Laughton, clerk of works,

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eene speciale byeenkomst van Gesondheids Comité, 24 April 1893.

88 NASA, TAB, CS, 18, 2157/01, Charles Aburrow to G.V. Fiddes, secretary, Transvaal administration, 5 June 1901.

89 Meineke & Summers, 1983, 20–21.

90 Meineke & Summers, 1983, 21.

91 NAB, 3/PMB 1/1/7, Town Council special meeting, 21.5.1898.

92 NAB, 3/PMB 1/1/7, Town Council special meeting, 9.9.1898.

93 NAB, 3/PMB 1/1/7, Town Council meeting, 5.11.1901.

was changed to that of town engineer.[94] Laughton was the first known town engineer of King Williams Town who was not town clerk as well. He resigned in July 1897 after being appointed by Port Elizabeth.[95] After this, King Williams Town had first J.L. Bonnar and then J.I. Evans as foreman of works until February 1899 when Evans' title was changed to that of borough engineer.[96] Evans resigned in December of the same year since he was unable to attend his duties because of his health.[97]

In Green Point, there was a succession of part-time town engineers from Oliver's resignation in 1893 until December 1897 when the first full-time engineer was appointed. The engineer appointed, T. Scott-Bayley (unknown–1903) started on January 1898 but apparently resigned later in the same year.[98] The new engineer, Richard Henry Heward (1855–1934), was appointed in February 1899.[99] Heward stayed in office until 1914 when the municipality of Green Point and Sea Point was united with Cape Town.

In Cape Town, in August 1894, city engineer T.W. Cairncross drew the attention of the town council to the increased workload in his office and stated that he felt it imperative to relinquish the office of city engineer. He applied to be appointed as engineer for waterworks. The council agreed provided that he continued to discharge the duties of city engineer until his successor was appointed.[100] William Thomas Olive (1852–1935) from Manchester was appointed in March 1895 because of his experience with sewerage works.[101] Olive apparently had strong opinions and was difficult to work with. Consequently he requested in December 1896 to be relieved from the duties as city engineer and surveyor. He also stated that he was willing to continue to act as engineer for the drainage scheme. This was agreed and on the 1st of January Cairncross was again acting city engineer.[102] In April 1898, he, however, asked leave of absence and

94 WCPA, 3/KWT 1/1/1/13, Borough Council meeting, 29.8.1893.
95 WCPA, 3/KWT 1/1/1/13, Borough Council meeting, 27.7.1897.
96 WCPA, 3/KWT 1/1/1/14, Borough Council meeting, 25.10.1898; WCPA, 3/KWT 1/1/1/14, Borough Council meeting, 15.1.1899.
97 WCPA, 3/KWT 1/1/1/14, Borough Council meeting, 21.12.1899.
98 WCPA, 3/GSP 4, Town Council meeting, 17.12.1897.
99 WCPA, 3/GSP 5, Town Council meeting, 13.2.1899.
100 WCPA, 3/CT 1/1/1/43, Town Council meeting, 23.8.1894.
101 WCPA, 3/CT 1/1/1/43, Town Council special meeting, 4.3.1895.
102 WCPA, 3/CT 1/1/1/45, Town Council meeting, 24.12.1896.

further that he be relieved from the duties of city engineer.[103] The town council finally decided to advertise the position of city engineer again. After receiving 60 applications from the United Kingdom and several local, the town council elected Robert O. Wynne-Roberts (1864–1935), borough surveyor of Llandudno, in August 1898.[104]

In 1896, the government of the Zuid-Afrikaanse Republiek decided that Pretoria, the capital, needed a town engineer to take care of public works. The government appointed local railway engineer Ernst Lutz (1848–1927) for the position. Lutz, however, received conflicting orders from the central and local government. Because of these problems, he soon resigned in 1897.[105] By December 1898 the town council realised that they needed a new town engineer and the position was advertised in April 1899. The town council asked the manager of the Pretoria Waterworks Company, August Karlson (1858–unknown), to apply and consequently he was appointed and took office in June 1899.[106] Karlson held the office until 1902 when he was removed and became a consulting engineer.[107]

Figure 13. John Laughton, town engineer of King William's Town, 1893–1897, and of Port Elizabeth, 1897–1898. (*South African Who's Who*, 1908)

In 1897, both Port Elizabeth and East London appointed town engineers after some years break. In Port Elizabeth, John Laughton (See Figure 13), borough engineer of King Williams Town, sent a letter to the town council and offered to take over the duties of town engineer during the first week of August and continue until a permanent appointment was made.[108] The town council received 97 applications for the position; the appointment, nevertheless, went to Laughton in

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103 WCPA, 3/CT 1/1/1/47, Town Council meeting, 28.4.1898.
104 WCPA, 3/CT 1/1/1/47, Town Council meeting, 11.8.1898.
105 Mäki & Haarhoff, 2009, 236–237.
106 NASA, TAB, MGP, 86, 3870/01, August Karlson to Major-General Maxwell, military governor, Pretoria, 15 April 1901.
107 NASA, TAB, PWD, 24, 763/02, R. Kelsky Loveday to Public Works Department, [the first page of letter missing, probably March 1902].
108 WCPA, 3/PEZ 1/1/1/17, Town Council meeting, 14.7.1897.

October.[109] He resigned for unknown reasons a year later.[110] In November 1898, G.H. Small[111] from Penzance was appointed a new engineer from the beginning of 1899.[112] He resigned in March 1902 after his contract ended.[113]

In East London, the mayor was in May 1897 of the opinion that the clerk of works department needed new blood. The result was that James Maden (1842–1931), clerk of works, was given three months notice and the position of town engineer was advertised.[114] In July, John Powell (1868–unknown) was appointed after a ballot had been taken.[115] Powell tendered his resignation in August 1900 after becoming interested in a syndicate formed to work a local industry. There was conflict of interests and he could not continue in the official position.[116]

In 1898, the first town engineer was appointed in the Orange Free State. Hastings Fitzedward Peet (1865–1935) was appointed borough engineer of Bloemfontein after one month's negotiations about the length of the appointment.[117] Peet stayed in office until 1908.

There were two appointments in 1899. William Farquhar Malloch (1861–1921) was appointed superintendent of works of Uitenhage that year.[118] He was, however, a competent engineer and the member of the Institute of Mechanical Engineers in London. He was also continuously called as town engineer in the town council minutes and in local newspapers. Since he was also doing the same work in Uitenhage than town engineers were doing in other South African municipalities at that time, I have also decided to consider him as town engineer. Incidentally, the first time the appointment of town engineer was discussed in Uitenhage was already in 1874.[119]

In Woodstock, the town council decided to call applications for the position of engineer and surveyor in September 1898.[120] In December, a certain Mr Gray (first names not certain, most likely W.H.) was appointed from the beginning of

109 WCPA, 3/PEZ 1/1/1/17, Town Council meeting, 13.10.1897.
110 WCPA, 3/PEZ 1/1/1/18, Town Council meeting, 26.10.1898.
111 There is controversial information about the initials, some sources say that they are G.A.
112 WCPA, 3/PEZ 1/1/1/18, Town Council meeting, 9.11.1898.
113 WCPA, 3/PEZ 1/1/1/19, Town Council meeting, 19.3.1902.
114 WCPA, 3/ELN 1/1/1/10, Municipal Council meeting, 12.5.1897.
115 WCPA, 3/ELN 1/1/1/11, Municipal Council special meeting, 5.7.1897.
116 WCPA, 3/ELN 1/1/1/12, Municipal Council meeting, 29.8.1900.
117 VAB, MBL 1/1/1/9, town council meetings, 16.6, 7.7., 11.7. and 21.7.1898.
118 Herholdt, 1991, 80.
119 Sellick, 1904, 78.
120 WCPA, 3/WSK 7, Town Council special meeting, 2.9.1898.

the next year.[121] Council, however, lost confidence in Gray during 1899 because of the want of organisation and lack of control in his department. Consequently he was asked to resign from the 1st January 1901.[122]

Expansion in the 1900s

The Cape Colony

In the Cape Colony, the number of municipalities grew to 115 during the first decade of the 20th century. There were also a slight increase in the number of municipalities having an engineer; from 11 in 1900, the number increased to 19 in 1909, decreasing again to 17 in 1910. (See Figure 14) The reasons for this decrease will be returned in Chapter 9.

In Table 1 are listed populations of all the towns in the Cape Colony having over 2000 inhabitants in census years of 1865, 1875, 1881 and 1904. While looking

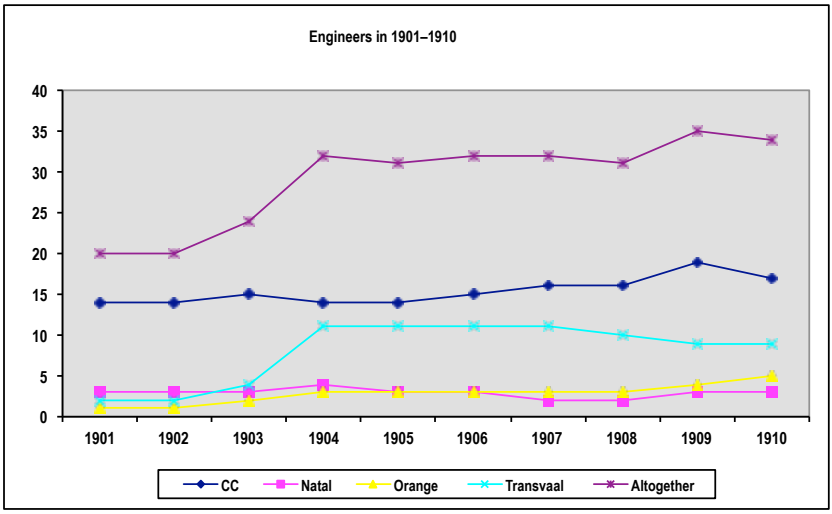

Figure 14. Number of engineers in 1901–1910.

[121] WCPA, 3/WSK 7, Town Council meeting, 19.12.1898.
[122] WCPA, 3/WSK 8, Town Council special meeting, 27.9.1900.

at the year 1904, we can see that amongst the ten most populous municipalities, only Grahamstown and Paarl did not have an engineer.[123] Of these two, Grahamstown appointed one in 1907. The strange case here is Paarl which was during the whole time period among the ten most populous municipalities but apparently appointed their first town engineer only in the 1920s.

Table 1. Towns in the Cape Colony having over 2000 inhabitants 1865–1904 (e = means that municipality had town engineer, in case of Cape Town in 1904 all the suburbs had their own engineers meaning that there were seven town engineers in the area) (Adapted from Mabin, 1984, 328)

Town	1865	1875	1891	1904
Cape Town (+ suburbs)	37791 (e)	45240 (e)	78866 (e)	166864 (e, 7)
Port Elizabeth (+ Walmer)	10773 (e)	13049	23793	32278 (e)
Grahamstown	8072	6903	10498	13887
Paarl	4929	5760	7668	11290
Graaff-Reinet	3869 (e)	4562	5946	10080
Uitenhage	3342	3693	5331	12193 (e)
Worcester	3257	3788	5404	7885
Stellenbosch	2975	3173	3462	4969
Swellendam	2016	2008	–	2406
Kimberley (+ Beaconsfield)		17849	39196 (e)	43664 (e)
King Williams Town		5169	7226	9506 (e)
Simon's Town		2447	3576	4648 (e)
Queenstown		2320	4094	9585
Somerset East		2231	2894	5216
Wellington		2192	2725	4881
East London (+ Cambridge)		2134	7918	27771 (e)
Cradock			4389	7753
Oudtshoorn			4386	8847
George (+ Pacaltsdorp)			3017	4077
Beaufort West			2791	5463
Somerset West-Strand			2544	5580
Malmesbury			2461	3807
Robertson			2121	3244
Mossel Bay			2061	4107
Kokstad			2059	2870
Aliwal North			2057	5338
Middelburg				6138
Kalk Bay-Muizenberg				3594 (e)

[123] Of the suburban municipalities of Cape Town, Woodstock had over 25000 inhabitants and both Wynberg and Claremont over 13000.

Caledon				3508
Vryburg				2955
Burgersdorp				2894
De Aar				2857
Molteno				2723
Victoria West				2716
Taung				2715
Mafeking				2713
Colesberg				2666
Indwe				2608
Riversdale				2588
Aberdeen				2545
Upington				2508
Ceres				2402
Umtata				2306
Tarkastad				2264
Bedford				2255
Steynsburg				2250
Willowmore				2167
Okiep				2099
Dordrecht				2024

Around the turn of the century, nearly all the neighbouring small municipalities of Cape Town had grown so much that they needed to appoint town engineers. Green Point had part time engineers since the 1880s, but the first full time engineer was appointed in 1899; Woodstock appointed their engineer in the same year. Wynberg and Simon's Town appointed engineers in 1900, Mowbray and Claremont in 1901, Kalk Bay-Muizenberg in 1902 and Rondebosch in 1903.

In Wynberg, A.J. Edwards was appointed in September 1900.[124] He resigned for unknown reasons two years later. In October 1902, Hugh Master Ladell (1880–unknown), the assistant borough surveyor and water works engineer of Tunbridge Wells, was appointed Edwards' successor.[125] Ladell continued in office until Wynberg was joined to Cape Town in 1928. Simon's Town appointed its first engineer about one month later than Wynberg. Of the 19 applicants, the town council picked Ernest William Attridge (1872–1942), who was already working

[124] WCPA, 3/WBG 4, Town Council meeting, 3.9.1900.
[125] WCPA, 3/WBG 5, Town Council meeting, 7.10.1902.

on naval dockyard construction in the town.[126] Attridge resigned in December 1911 after receiving an appointment at the irrigation department.[127]

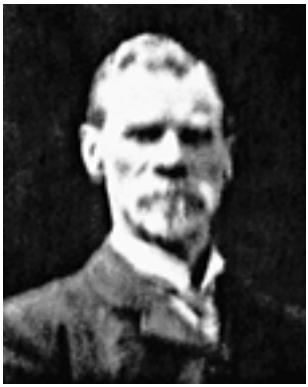

Figure 15. James Maden, town engineer of Claremont, 1901–1914. (*South African Who's Who*, 1908)

In Woodstock, the second town engineer Robert William Menmuir (1867–1942), previously deputy borough engineer of Ipswich, was appointed in June 1901.[128] He resigned in 1913, a few months before Woodstock was joined with Cape Town.[129] In Claremont, the title of the municipal inspector James Maden (See Figure 15) was changed to that of town engineer during 1901. Maden retired when Claremont was joined with Cape Town in 1914.[130] In Mowbray, the town council received 20 applications for the post of town engineer. After consideration, Francis B. Drake (1866–unknown), deputy engineer of Richmond, was unanimously appointed in July 1901.[131] In December 1909, the town council decided to abolish the office of the town engineer and dismissed Drake because of financial difficulties.[132]

In Kalk Bay-Muizenberg, the first town engineer was appointed in February 1902. In a final ballot, Thomas Bennett (1851–1911), superintendent of the Cape Peninsula Water Works Company, was unanimously chosen.[133] Bennett had problems with the drainage scheme and this finally led to his dismissal in September 1906.[134] Bennett had been suspended already from November 1905 to February 1906, during which time W.T. Olive, former town engineer of Cape Town, was acting town engineer.[135] After Bennett's dismissal, the town council appointed Wilhelm Westhofen (1842–1925), recently retired head of the

126 WCPA, 3/SMT 1/1/1/6, Town Council meeting, 11.10.1900.
127 WCPA, 3/SMT 1/1/1/11, Town Council meeting, 21.12.1911; Wilson, 1995, 148–150.
128 WCPA, 3/WSK 8, Town Council meeting, 17.6.1901.
129 Obituary, Menmuir, 1942, 220–221.
130 South African Who's Who, 1908, 259.
131 WCPA, 3/MWY 2, Town Council special meeting, 24.7.1901.
132 WCPA, 3/MWY 6, Town Council special meeting, 2.12.1909.
133 WCPA, 3/KBY 2, Town Council special meeting, 4.2.1902.
134 WCPA, 3/KBY 3, Town Council meeting, 13.9.1906; Fowler & Coates, 2007, 107–109.
135 WCPA, 3/KBY 3, Town Council meetings, 26.10.1905 and 15.2.1906.

engineering branch of the Public Works Department of the Cape Colony, as consulting engineer. He continued in this position until August 1907.[136] The new town engineer, Daniel Peter Howells (1880–1953), the assistant town engineer of Wynberg, was appointed in February 1908.[137] In 1910, Howells was chosen as the town engineer of Benoni in Transvaal. He continued as town engineer of Kalk Bay-Muizenberg until January 1911 but in practice went to Benoni already in April 1910. H.E.A. Jones was acting town engineer until Howells' tenure ended. After that, Kalk Bay-Muizenberg did not anymore appoint a town engineer before unification with Cape Town in 1914.

In Rondebosch (See Figure 16), the issue of the appointment of an engineer was raised for the first time in June 1900.[138] The decision to appoint an engineer was, however, made only in August 1903.[139] In October, Percy Ashenden (1855–

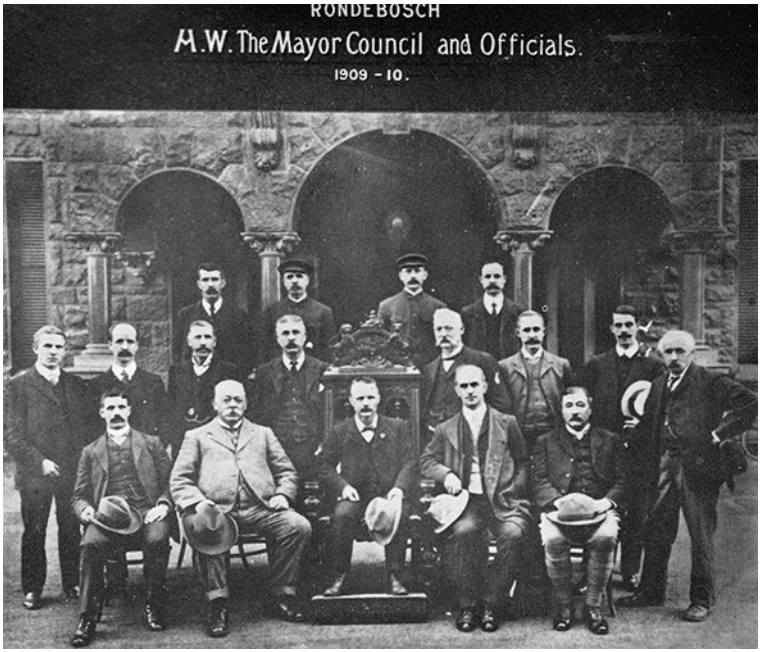

Figure 16. Rondebosch town council and officials 1909–1910. Percy Ashenden, town engineer in 1903–1914, third from left in middle row. (Shorten, 1963, 162)

136 WCPA, 3/KBY 3, Town Council meetings, 13.9.1906 and 29.8.1907.
137 WCPA, 3/KBY 3, Town Council meeting, 6.2.1908.
138 WCPA, 3/RBH 5, Town Council meeting, 28.6.1900.
139 WCPA, 3/RBH 6, Town Council meeting, 6.8.1903.

1915) from the Public Works Department of the Cape Colony was appointed for the position.[140] When Rondebosch was joined with Cape Town in 1914, Ashenden was transferred to the City Engineer's Department of Cape Town.

In Cape Town itself, the work load of city engineer's department had grown so much that in 1901 it was decided to establish an independent waterworks department. Because town engineer Robert Wynne-Roberts had experience especially in connection with waterworks, he was transferred to the position of hydraulic engineer in charge of the waterworks.[141] This separation lasted until 1906 when the waterworks department was amalgamated with the city engineer's department once more. Wynne-Roberts at that point retired from the service of Cape Town and returned to England.[142] The appointment of a new city engineer in 1901 was not a smooth operation. The position was advertised in both South Africa and Great Britain. By October 1901, the municipality received eight applications from South Africa and other colonies and 66 from Great Britain. After careful consideration of local candidates, it was decided that none of them was suitable.[143] Of the British candidates, the most suitable was deemed to be E.J. Lovegrove, chief engineer and surveyor to the Hornsey District Council.[144] Lovegrove, however, declined the position because of a raise offered by the Hornsey District Council.[145] The town council advertised again and in January 1902, after consideration of the new applications, John Cook (unknown–1925), borough surveyor of Lancaster, was appointed.[146] In early 1907, there was an inquiry of streets contracts in Cape Town. In the report, there were certain remarks that made it impossible for Cook to continue as city engineer and he resigned in March of the same year.[147] At the same meeting that Cook's resignation was accepted, the assistant city engineer William James Jeffries

140 WCPA, 3/RBH 6, Town Council meeting, 1.10.1903.

141 WCPA, 3/CT 1/1/1/52, Town Council meeting, 11.4.1901.

142 Mäki, 2008, 74.

143 Among the eight candidates were for instance, G.B. Laffan, former borough engineer of Pietermaritzburg, John F.E. Barnes, former borough engineer of Durban, and Thomas Bennett, who was next year appointed town engineer of Kalk Bay-Muizenberg.

144 WCPA, 3/CT 1/1/1/54, Town Council meetings, 24.10. and 28.101901.

145 WCPA, 3/CT 1/1/1/54, Town Council meeting, 14.11.1901; Lovegrove continued in Hornsey long in the 1920s.

146 WCPA, 3/CT 1/1/1/54, Town Council meeting, 27.1.1902.

147 WCPA, 3/CT 4/1/1/142, F144-1, J. Cook to the mayor and councillors of the city of Cape Town, 18.3.1907.

(1856–1930) was appointed as acting city engineer.[148] Jeffries continued in this position until municipal unification in 1914 when he retired, still titled as acting city engineer.[149]

In King Williams Town, applications for the position of borough engineer were considered in April 1900, after J.I. Evans' resignation. There were 15 applications but the town council decided to make further enquiries on three prime candidates.[150] In the council meeting in May, the mayor read a letter from Edwin J.D. Brooks (1869–1948) from Cape Town offering his services as borough engineer. Apparently the enquiries about previous candidates were not satisfactory since the council decided to appoint Brooks.[151] He stayed in office until August 1903, when he resigned after a motion of council cast a reflection on Brooks' work.[152] In the next month, James Maden, the assistant engineer of Salt River works of the Cape Government Railways and son of James Maden, town engineer of Claremont, was appointed a new engineer.[153] Maden resigned soon after the Pirie Water Works were completed in 1910 and left for India.[154] The town council considered applications in September 1910, and appointed Thomas George Caink, who had been resident engineer during the construction of Maden Dam.[155] Caink stayed in King Williams Town until 1926 when he went to Estcourt, Natal, as town clerk and engineer.[156]

In East London, after Powell's resignation, applications were considered in December 1900. In the final ballot, there was a draw between W.A. Palliser, town engineer of Queenstown, and Robert Lee. It was decided to cast lots and Palliser's name was drawn first.[157] In May 1902, there was an enquiry into the working of the town engineer's department. The first enquiry was held on the 12th of May, and the town clerk's report and replies of the town engineer thereto were received on 27th. The enquiry proceeded on 30th during which Palliser handed

148 Cape Town, Annual Report of the City Engineer and Surveyor, in Mayor's Minute, 1907, i.
149 Cape Town, Mayors Minute, 1914, 126.
150 WCPA, 3/KWT 1/1/1/14, Town Council special meeting, 18.4.1900.
151 WCPA, 3/KWT 1/1/1/14, Town Council meeting, 30.5.1900.
152 WCPA, 3/KWT 1/1/1/15, Town Council special meetings, 25.8. and 27.8.1903.
153 WCPA, 3/KWT 1/1/1/15, Town Council special meeting, 17.9.1903.
154 Nelson, 1979, 20–22.
155 WCPA, 3/KWT 1/1/1/18, Borough Council meeting, 30.9.1910.
156 Institute of the Civil Engineers, Candidate Circular, Thomas George Caink.
157 WCPA, 3/ELN 1/1/1/12, Municipal Council special meeting, 21.12.1900.

in his resignation. He was asked to reconsider but was finally released from his duties at the end of June.[158] The assistant engineer, William Farrant (1873–unknown), was appointed as acting town engineer. Applications for the position were opened in a special meeting on 20th August; it was, however, decided that Farrant was to continue to act as town engineer.[159] He resigned in June 1903 and the decision was made to advertise the position of town engineer again.[160] This time building inspector, T.A.J. Forrester (1871–unknown), was appointed as acting town engineer.[161] There were 105 applications and after a ballot, A. Ernest Prescott, borough surveyor of Douglass, Isle of Man, was appointed in August.[162] Prescott, however, wanted three years engagement and travelling expenses paid. The council informed Prescott that they could not agree with these demands and instead appointed Walter Bond (1861–unknown), borough surveyor of Swansea, in September.[163]

Bond gave three months' notice in August 1906.[164] The assistant town engineer, Horace Freeman (1863–unknown), was appointed as acting engineer. (See Figure 17) In a special meeting on 28th September, reference was made to 57 applications. It was, however, unanimously resolved that the appointment should be deferred until a decision was made whether the Wolf River Water Supply Scheme would proceed.[165] Finally in April 1907, the public works committee decided that the special committee should go through the old applications. They should select six candidates and enquire whether their services are still available. The council interviewed William Henry Biggs but was apparently not happy with him since

Figure 17. Horace Freeman, acting town engineer of East London, 1906–1907. (*South African Who's Who*, 1908)

158 WCPA, 3/ELN 1/1/1/13, Municipal Council special meetings, 12.5., 27.5. and 30.5.1902, and Municipal Council meeting, 2.6.1902.
159 WCPA, 3/ELN 1/1/1/13, Municipal Council special meeting, 20.8.1902.
160 WCPA, 3/ELN 1/1/1/14, Municipal Council special meeting, 13.5.1903.
161 WCPA, 3/ELN 1/1/1/14, Municipal Council meeting, 17.6.1903.
162 WCPA, 3/ELN 1/1/1/14, Municipal Council meeting, 26.8.1903.
163 WCPA, 3/ELN 1/1/1/14, Municipal Council meetings, 9.9. and 23.9.1903.
164 WCPA, 3/ELN 1/1/1/16, General Purposes Committee meeting, 3.8.1906.
165 WCPA, 3/ELN 1/1/1/16, Municipal Council special meeting, 28.9.1906.

they demanded the special committee to select six candidates. In June, the council was still demanding the names from the committee.[166] Finally, on the 26th June, the special committee submitted the list of six candidates. After a ballot, John Powell, who had already been town engineer in 1897–1900, was appointed.[167] He continued in office until 1927 when he retired.

In Port Elizabeth, Arthur Shaw Butterworth (1874–1917), borough surveyor of Hythe, Kent, was appointed as new town engineer after G.H. Small resigned in 1902. He died in 1917, at the age of only 44.[168] In Graaff-Reinet, the plans of improving water supply in 1900 got the town council to appoint a town engineer. James P. McMillan (1867–unknown) was appointed from the beginning of 1901.[169] The plans were, however, postponed and in September 1903 McMillan was given three months notice.[170] Like Graaff-Reinet, Grahamstown also had a municipal engineer after a long hiatus in 1907. In October of that year, the designation of newly-appointed clerk of works, Ernest Grubb (1874–1949) was changed to that of city engineer.[171] In July 1912, the town council appointed a Special Investigation Committee for the purpose, inter alia, of enquiring into and reporting upon "the working of the whole Municipal staff with a view to any

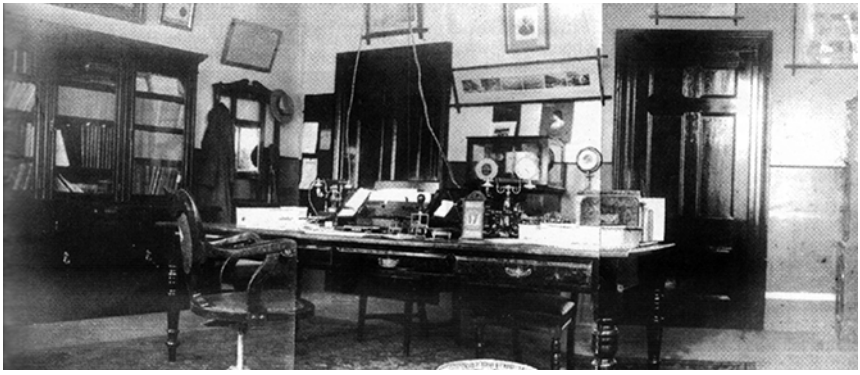

Figure 18. Office of the town engineer in Port Elizabeth, c. 1903. (Raymer, 2008)

166 WCPA, 3/ELN 1/1/1/17, Public Works Committee meetings, 10.4. and 24.4.1907, Municipal council meetings, 15.5. and 12.6.1907.
167 WCPA, 3/ELN 1/1/1/17, Municipal Council meeting, 26.6.1907.
168 Raymer, 2008, 158.
169 WCPA, PWD 2/10/27, M19/32, McMillan to the secretary of public works, 4.5.1903.
170 WCPA, 3/GR 1/1/1/10, Town Council meeting, 18.9.1903.
171 WCPA, 3/AY 1/1/1/15, Town Council meeting, 9.10.1907.

necessary re-organisation and possible reform". One result of this investigation was the abolishment of the office of city engineer and dismissal of Grubb in November 1912.[172]

In Uitenhage, W.F. Malloch and his water schemes had by 1905 drawn so much opposition that the town council dismissed him.[173] In October, M.J. McMaking (1880–unknown) from Cape Town was appointed to an open position.[174] McMaking resigned in April 1907 after getting an appointment in the government service.[175] At the end of the same month, Walter J. Mason (1868–unknown) from Port Elizabeth was appointed as a new superintendent of works.[176] In November, the title "superintendent of works" was discontinued, and the title, "town engineer" adopted instead.[177] Mason resigned in September 1911 after being appointed town engineer of Bulawayo in Rhodesia.[178]

There were also four other municipalities in the Eastern Cape that appointed their first town engineers during the first decade of the 20th century. In July 1905, Somerset East entered into agreement with A.C.V. Baines.[179] He resigned in March 1909.[180] In Umtata, the water scheme demanded the appointment of resident engineer in 1909; in September, Ed.J.D. Brooks was appointed for the position.[181] In April 1910, he was empowered to take up the duties of town engineer.[182] Brooks resigned in October 1911 after being appointed chief engineer to the Transkeian and Pondoland General Council.[183] Of the two other appointments, J. Kelly in Aliwal North in 1909–1910 and J. Daniel in Adelaide in 1909, no details are known. What, however, is common with these four is that in none of them the municipality appointed a successor to engineer for a few years.

Of the Cape Colony there is still left Queenstown to handle. After Palliser resigned, Geo. A. Kearnley (or Kearney) temporarily assumed the duties of town

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172 WCPA, 3/AY 1/1/1/17, the special committee report in Town Council meeting, 6.11.1912.
173 Herholdt, 1988a, 66.
174 WCPA, 3/UIT 1/1/1/28, Town Council meeting, 31.10.1905.
175 WCPA, 3/UIT 1/1/1/28, Board of Works meeting, 28.3.1907.
176 WCPA, 3/UIT 1/1/1/28, Town Council meetings, 16.4, 19.4 and 25.4.1907.
177 WCPA, 3/UIT 1/1/1/29, Town council meeting, 26.11.1907.
178 WCPA, 3/UIT 1/1/1/31, Board of Works meeting, 26.9.1911.
179 WCPA, 3/SSE 1/1/1/12, Municipal meeting, 26.7.1905.
180 WCPA, 3/SSE 1/1/1/13, Municipal meeting, 10.3.1909.
181 WCPA, 3/UTA 1/1/1/17, Municipal council special meeting, 14.9.1909.
182 WCPA, 3/UTA 1/1/1/17, Municipal council meeting, 20.4.1910.
183 Institute of the Civil Engineers, Candidate Circular, E.J.D. Brooks.

engineer.[184] His name vanished from the documents during 1901 without any new town engineer, so apparently the position was abolished. Then in 1905, with the starting of building of Bongola Dam (See Figure 19), John Gellatly (1863–1935) arrived to Queenstown to be engineer-in-charge of this project. It seems that the municipality used his services during the building project as a consulting engineer, but unlike some sources say he was never officially town engineer. Gellatly left Queenstown in 1910.[185] The next official town engineer, T.C. Halliday, was appointed in 1916.

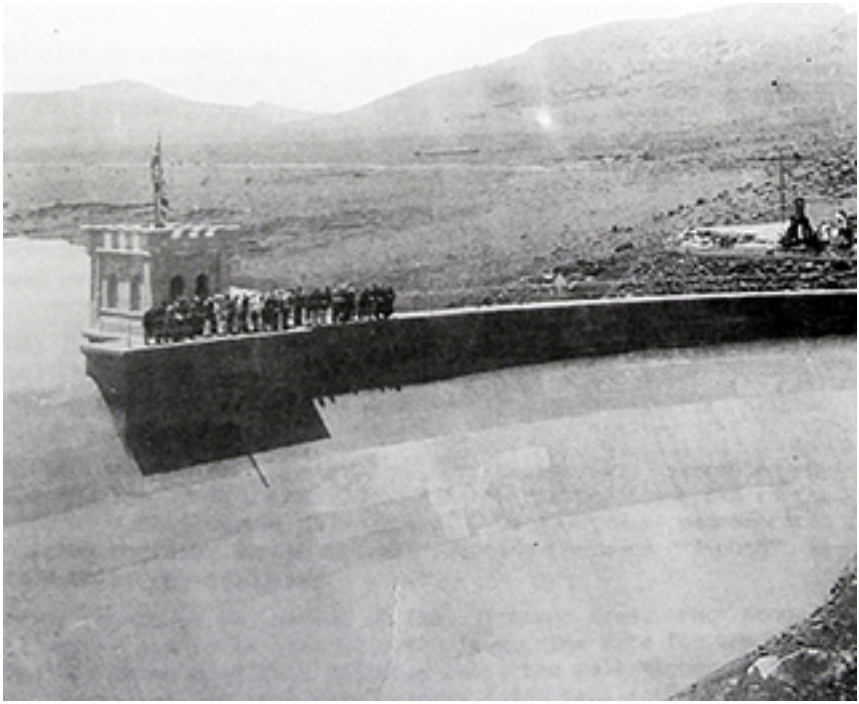

Figure 19. Opening of Bongolo Dam in Queenstown. (Greaves, 1987)

[184] WCPA, 3/QTN 1/1/1/9, Town council meeting, 28.12.1900.

[185] Institute of the Civil Engineers, Candidate Circular, John Gellatly; Greaves, 1987, 17; Crawford & Dachs, 1995, 8.

Natal

In Natal, two new municipalities were established during this decade; Dundee in 1902 and Weenen in 1910. Besides Durban and Pietermaritzburg that had engineers during the whole decade there were borough engineers also in Newcastle and Ladysmith for short periods of time.

In Newcastle, George Jenkins, foreman of works, was accorded the title of borough engineer in 1900 in gratitude for his work during the period of evacuation of Newcastle during the Anglo-Boer War.[186] In June 1904, the town council decided to give borough engineer, town foreman and cemetery caretaker one month's notices.[187] The next borough engineer was Robert W. Nisbet (1873–1958) from 1909 to 1912. The details of his appointment or resignation are not known.

In Ladysmith, the council decided in 1904 that they needed an engineer to supervise public works. They had appointed a waterworks engineer, M.O. Sahlström, already in 1898 but apparently he could not cope with all the work. The man now appointed was William R.H. Chipperfield (1856–1906), the chief assistant engineer of the Public Works Department of the Cape Colony in Port Elizabeth. Unfortunately Chipperfield (See Figure 20) died only two years later for injuries sustained in a fall from his horse.[188] To my knowledge, the next town engineer was appointed in 1922.

Figure 20. W.R.H. Chipperfield, borough engineer of Ladysmith, 1904–1906. (*Twentieth-Century Impressions*, 1906)

In Pietermaritzburg, the position of borough engineer was open after Laffan's contract was not renewed in November 1901. The council asked Frank Walton Jameson (1873–1956), their consulting engineer, to provide a report on augmenting water supply. The report was ready in March 1902 and based on it, Jameson was

186 Baylis, 1951, vol. 3, 5.
187 Baylis, 1951, vol. 3, 92.
188 Obituary, Chipperfield, 1906, 364–365; NAB, 3/LDS, 1/1/1/3, Town Council meeting, 16.3.1906.

appointed as the new borough engineer with effect from 11th November 1901.[189] Jameson got along better with the councillors than his predecessors and resigned seven years later in April 1909 in order to become town engineer of Pretoria.[190] His successor was discussed in the council in June. In the second ballot, James Just Niven (1874–1939), private engineer from Cape Town received the highest number of votes and was duly appointed after the council had interviewed him a week later.[191] Niven retired in 1925 together with the assistant engineer. The council wanted to get younger and more progressive men for those positions.[192]

Free State

In the Free State, the number of municipalities increased by ten during this decade. All those towns which had been subject to the control of the town councils, under the law of 1890, or boards of management with powers of the town councils, under proclamation of 1902, retained their status as municipalities in terms of the new municipal law of 1903. Altogether 33 towns, besides Bloemfontein, were given a status of a municipality under this provision.[193] Of these only Bloemfontein had a town engineer when the new century started. During the decade, Kroonstad, Harrismith and Parys and possibly Ladybrand appointed their own engineers. (See Figure 14.)

In Bloemfontein, H.F. Peet retired from the position of city engineer in February 1908. A retrenchment committee had recommended in 1907, among other items, a reduction of the city engineer's salary. Peet did not accept this but reached an agreement with the town council that he would accept 12 months retiring allowance.[194] The position of city engineer was already advertised before Peet left the position and so the new engineer was appointed before the end of February. The appointment went to H.A.C. Wallace (unknown–1939), the assistant engineer of Bloemfontein.[195] Wallace, however, fell ill immediately after

189 NAB, 3/PMB 1/1/7, Town council special meeting, 20.3.1902.
190 NAB, 3/PMB 1/1/8, Town council special meeting, 15.4.1909.
191 NAB, 3/PMB 1/1/8, Town council special meetings, 8.6. and 16.6.1909.
192 NAB, 3/PMB 1/1/11, Town council special meeting, 19.3.1926.
193 Verschuur, 1955, 56–57.
194 VAB, MBL 1/1/1/14, Town council meetings, 25.11.1907 and 16.1.1908.
195 VAB, MBL 1/1/1/14, Town council meeting, 20.2.1908.

starting in the new position and had to ask sick leave.[196] In July, he asked to be relinquished from the position because the extra duties and responsibilities were too much for his health. He also proposed to resume his previous position as an assistant engineer.[197] In August, George Alexander Stewart (1878–1951), the assistant engineer of the Johannesburg sewage disposal works, was appointed as new city engineer.[198] He had already been working in Bloemfontein 1903–1905, first as resident engineer on waterworks and then as acting city engineer while Peet was on leave.[199] Stewart resigned in February 1920 to apply for a position in the Irrigation Board of Government.[200]

Kroonstad was the next municipality to appoint town engineer. There is one Mr. Northfield who is said to be "stadsingenieur" until sometime in 1903.[201] After him, there was John Phillips Mumford (1858–unknown) from 1903 to 1904. After Mumford, there was Mr. Smith until the beginning of 1905. He was probably acting town engineer until Frank Losenby Brown (1878–unknown) started. Information on the three first is rather skimpy. Brown (See Figure 21), who was at the time working as the engineering assistant in Durban, was appointed from 128 applicants in November 1904.[202] In September 1911, Brown, while on leave in London, obtained an appointment in the Colonial Office and sent in his resignation.[203]

Figure 21. Frank L. Brown, town engineer of Kroonstad, 1905–1911. (*Men of the Times*, 1906, 528)

In Harrismith, the town council had been using G.B. Laffan, former borough engineer of Pietermaritzburg, as consulting engineer on water supply and other public works issues. In September 1903, the council asked Laffan to engage a competent man to carry out public

196 VAB, MBL 1/1/1/14, Town council meeting, 5.3.1908.
197 VAB, MBL 1/1/1/14, Town council special meeting, 23.7.1908; Wallace continued as assistant city engineer until 1923.
198 VAB, MBL 1/1/1/14, Town council meeting, 20.8.1908.
199 VAB, MBL 3/1/8, Mayor's Minutes 1903, 15; VAB, MBL 3/1/9, Mayor's Minutes 1904, 33.
200 VAB, MBL 1/1/1/21, Town council meeting, 9.2.1920; Obituary, Stewart, 1951, 121.
201 Serfontein, 1990, 222.
202 *Men of the Times*, 1906, 528.
203 VAB, MKR 1/1/3, Town council meeting, 14.9.1911.

works. At the beginning of November, Laffan sent a letter to the town council informing them that W.J. Schooling (1873–unknown), the new superintendent of street works, would enter upon his duties on 18 November.[204] The following year, the name was changed to that of town engineer. In March 1908, the town council adopted retrenchment measures, among others giving one months notice to the town engineer and abolishing the whole public works department "with the exception of foreman and ten natives".[205] In October, however, sanitary inspector John E. Jones was appointed to act as town engineer. He was apparently still in this position in 1911. It is unknown when Harrismith appointed the next official town engineer.

In Parys, W.C. Gibbons was resident engineer in water works. In 1909, when the town council started to discuss about appointing an own engineer, Gibbons strongly recommended William McKenzie, who then was appointed in June.[206] McKenzie was still town engineer in 1916.

There are still two municipalities that have to be mentioned. In Ladybrand, municipal regulations from 1906 mention the salary of town engineer.[207] Nevertheless, I have not been able to ascertain if there really was a town engineer at that time. There are some sources that mention John Gellatly, who was discussed already in connection with Queenstown, as town engineer from 1910 to either 1912 or 1916. This is again something I have not been able to verify.[208]

The other case is Bethlehem. Van Rensburg, in his history of Bethlehem, gives a list of town engineers. In this list, the first two names are J. Gault in 1908–1909 and L. Blasson in 1910–1913.[209] After going through the town council and mayor's minutes of relevant years, I found out that they were not town engineers. Both were electrical engineers, responsible only for the electricity works.[210] They did not have anything to do with, for instance, water supply or the other public works. The first town engineer of Bethlehem was William Farquhar Malloch

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204 VAB, MHT 1/1/4, Town council meetings, 21.9. and 10.11.1903.

205 VAB, MHT 1/1/5, Town council meeting, 23.3.1908.

206 VAB, MPA 1/1/2, Town council meetings, 11.2., 4.3. and 3.6.1909.

207 Bosch, 1967, 60.

208 Unfortunately they do not have town council minutes or any other municipal material of Ladybrand from this time period in Free State Provincial Archives in Bloemfontein.

209 Van Rensburg, 1964, 201.

210 VAB, MBM 4/1/1, Mayor's Minutes 1909–1911; VAB, MBM 1/1/6–7, Town Council minutes, 1908-1913.

in 1913–1914, who was mentioned earlier in connection with Uitenhage.[211] Van Rensburg doesn't mention him at all.

The Transvaal

Before the Anglo-Boer War (1899–1902), there were experimental attempts to establish municipal government in the Zuid-Afrikaanse Republiek in the urban centres of Potchefstroom, Pretoria, Lichtenburg, Lydenburg, Rustenburg, Zeerust and Johannesburg. Of these only Johannesburg was successful. It seems that in all the other cases the municipalities failed due to a lack of financial viability. Municipal government was introduced permanently in this area only under British control after the Anglo-Boer War.[212] The municipalities of Boksburg, Heidelberg, Klerksdorp, Krugersdorp, Middelburg, Pietersburg, Standerton, Potchefstroom and Germiston were formally established in 1903. The municipality of Barberton was created in January 1904. A number of urban district boards were also created in 1903. They were granted municipal status later in 1904, but were called minor municipalities, whereas the aforementioned ten plus Johannesburg and Pretoria were called major municipalities. Roodepoort-Maraisburg became a major municipality in 1905 and Benoni was separated from Boksburg and was proclaimed a major municipality in 1907. Of the major municipalities, Middelburg, Barberton and Roodepoort-Maraisburg did not appoint a municipal engineer before 1910; among the minor municipalities the only appointment of a municipal engineer before 1910 was at Volksrust.[213] (See Figure 14.)

Contemplated from the perspective of demography it becomes evident that the 11 municipalities appointing municipal engineers before 1905 were among the 13 largest municipalities. (See Table 2.) The population of the whole Transvaal in 1904 was almost 1,3 million people. An estimated 83% of the Transvaal's urban residents had the benefit of a municipal engineer. By 1910 this percentage had increased to 89%.

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211 VAB, MBM 1/1/7, Town Council meeting, 31.1.1913; VAB, MBM 1/1/8, Town council meeting, 7.8.1914.

212 Green, 1957, 44–76.

213 Bell and Lane, 1905, 97; Henderson and Pay, 1911, 184–185.

Table 2. Population of biggest municipalities in the Transvaal in 1904 and 1910.

	Population in 1904[1]	Population in 1910[2]
Johannesburg	160,000	210,000
Pretoria	35,000	41,600
Germiston	29,127	54,000
Krugersdorp[3]	19,483	44,500
Boksburg	14,650	40,000
Benoni	(part of Boksburg)	21,000
Potchefstroom	9,086	14,037
Springs	6,500	4,900
Standerton	5,208	3,000
Roodepoort	4,000[4]	35,000
Klerksdorp	3,733	4,040
Heidelberg	3,219	2,700
Pietersburg	3,200	4,547 (1912)
Volksrust	2,382	2,300
Barberton	2,379	2,800
Christiana	2,082	1,500
Lydenburg	1,523	1,523
Ermelo	1,451	1,600
Lichtenburg	1,350	not given
Piet Retief	1,028	900
Vereeniging	911	1,050
Wakkerstroom	800 (whites)	1,331
Zeerust	800 (without natives)	800
Wolmaransstad	470	1,000
Middelburg	not given	1,300
Rustenburg	not given	1,400
Venterstad	not given	1,100

1 Figures for 1904 are from Bell & Lane, except Krugersdorp and Roodepoort.
2 Figures for 1910 are from Henderson & Pay, 1911, except Pietersburg, which is from the 1913 edition, and Krugersdorp.
3 Krugersdorp, Mayor's Minute, 1904, 3; Krugersdorp, Mayor's Minute, 1910, 3.
4 Scholtz, 1979, 41.

The size of the permanent local population was a definitive factor. For example, Middelburg did not have a municipal engineer, although it was a major municipality – presumably primarily as a result of its linkage to the Transvaal rail network. On the other hand, some larger urban centres like Barberton, Roodepoort and Springs only appointed town engineers in 1912 and in 1904 both Roodepoort and Springs were already bigger than some major municipalities

that did make the appointment. An interesting, possibly related development in Springs was that the population actually decreased from 1904 to 1910. What actually happened in Barberton and Roodepoort was that Barberton had a water bailiff and Roodepoort a foreman of works and in both cases their titles were changed to that of a "town engineer". In the early 1920s, the South African District of the British Institution of Municipal Engineers was still considering how to stop unqualified individuals calling themselves "town engineers". Barberton and Roodepoort were not alone in following this practice.

Johannesburg and Pretoria both got new engineers in 1902. In Pretoria, the position was open since the contract of the previous engineer, August Karlson, was not continued. The appointment was in the hands of colonial government because of the war conditions. This led to the appointment of Hugh Daniel Badcock (1871–1939) in April against the wish of the Pretoria town council.[214] The retrenchment policy adopted in 1907 led directly to resignation of Badcock in 1908. He remained officially as town engineer until March 1909, but was not in Pretoria anymore after July 1908.[215] The appointment of Badcock's successor was discussed by the town council from December 1908 to March 1909. After prolonged and apparently heated discussion in March, F. Walton Jameson (See Figure 22), borough engineer of Pietermaritzburg, was chosen for the position.[216] Jameson remained in Pretoria until 1920, when he was appointed to town engineer of Kimberley.[217]

Figure 22. F.W. Jameson, borough engineer of Pietermaritzburg, 1902–1909, and town engineer of Pretoria, 1909–1920. (*Twentieth-Century Impressions*, 1906)

[214] NASA, TAB, CS 73, 2196/02, Acting secretary to the Transvaal administration to the chairman, Municipal Council Pretoria, 4.4.1902; NASA, TAB, CS, 83, 3568/02, Johan S. van Reesama, acting town clerk to the acting secretary to the Transvaal administration, 17.4.1902.

[215] NASA, TAB, MPA 1/1/1/15, Town Council meeting, 27.8.1908; Pretoria, Report of the Town Engineer, in Mayor's Minute, 1908, 27–9.

[216] NASA, TAB, MPA 1/1/1/15, Town Council meetings, 17.12. and 22.12.1908, and 14.1. and 4.3.1909.

[217] WCPA, 3/CT 4/1/5/778, G457/5, 14, City of Cape Town, Application for post of city engineer and surveyor from Frank Walton Jameson, 31.5.1933.

In Johannesburg, the appointment of a new engineer was also a long project. The search was started in December 1901 and after a few preferred candidates have declined the position, in June 1902 the appointment went to Donald Calder Leitch (1853–unknown), the assistant director of the architectural and engineering works in the Admiralty.[218] Leitch resigned in November 1904 after he was offered the position of chief engineer to the newly-established Rand Water Board.[219] After Leitch's resignation, the works committee proposed that the deputy town engineer, G.S. Burt Andrews (1868–1937), should be appointed new town engineer. This proposal was adopted by the town council.[220] Andrews had already been working in the Public Works Department of Johannesburg since 1893 and remained as city engineer until 1927 when he retired after 34 years continuous service.

The first engineers outside Pretoria and Johannesburg were apparently appointed in late 1903 in Pietersburg and Standerton. In Pietersburg, the first town council was elected in January 1904 and it appointed a new officials. Among the officials were town engineer and poundmaster, who had already been appointed by the previous health board and continued in their positions. This first town engineer, whose name is unknown, resigned in June of the same year.[221] In July, the general purposes committee recommended that R.W.B. Somerville (unknown–1918), clerk to the assistant district engineer of the Public Works Department in Pietersburg, should be appointed as a new town engineer. However, in the end of August it was decided to call for new applications.[222] In September, the general purposes committee selected engineers John Anderson and William Norman Ashplant (1877–1916) from 58 applicants as the most suitable for the position and recommended the appointment of Anderson.[223] The town council, however, appointed Ashplant (See Figure 23), who then resigned in the next month. The general purposes committee now reconsidered the previous applications and on 8 November submitted three names to the town council

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218 NASA, TAB, GOV, 17, GEN 356/02, Fred Graham to D.C. Leitch, 15.5.1902.

219 NASA, TAB, MJB 1/1/6, Tow council meeting, 14.12.1904.

220 NASA, TAB, MJB 1/1/6, Tow council meeting, 14.12.1904.

221 NASA, TAB, MPB 1/2/1, Minutes of the General Purposes Committee, 13.1. and 14.6.1904; Changuion, 1986, 89.

222 NASA, TAB, MPB, 1/2/1, Minutes of the General Purposes Committee, 12.7. and 30.8.1904.

223 NASA, TAB, MPB, 1/2/1, Minutes of the General Purposes Committee, 10.9.1904.

again recommending John Anderson. This time, he was appointed.[224]

Figure 23. W. N. Ashplant, town engineer of Pietersburg, September–October 1904. (Veterans of Southwestern Ontario)

Pietersburg's bad luck with its town engineer continued as Anderson was dismissed on 3 December because of "insobriety during business hours and wilful neglect of duty". The committee reconsidered once more the old applications and selected four candidates to be asked if they were still interested about the position. In 13 December, a recommendation was made to the town council favouring the appointment of James Younger (1881–1957).[225] He was duly appointed and stayed as a town engineer until April 1907 when he resigned to take up an appointment as the surveyor to the Transkeian General Council in Umtata.[226] Now, for the first time, the town council appointed an acting town engineer, George F. Hughes (1865–unknown), district engineer for railways department in Pietersburg.[227] The new town engineer, John Gillespie (1853–1918), was appointed in October 1907.[228] He was forced to resign in March 1908 after differences with the public health and works committee over the road construction.[229] Gillespie's resignation came at an opportune time for the municipality. Pietersburg was in a difficult financial situation and a decision was made to do away with the entire town engineer's department. With this and retrenchment in expenditure on roads and irrigation furrows and other reductions, Pietersburg was able to reduce its annual expenditure by approximately £1000. By reorganizing the departments, which enabled the dispensing with the services of several officials, considerable further savings were made.[230] Pietersburg was without a town engineer until 1912 when George F. Hughes was again appointed as acting town engineer.

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224 NASA, TAB, MPB, 1/2/1, Minutes of the General Purposes Committee, 3.11. and 8.11.1904.

225 NASA, TAB, MPB, 1/2/1, Minutes of the General Purposes Committee, 13.12.1904

226 NASA, TAB, MPB, 1/2/3, James Younger to the town Clerk, Pietersburg, 10.4.1907.

227 NASA, TAB, MPB, 1/1/2, Minutes of a Committee meeting of the Council, 26.4.1907

228 NASA, TAB, MPB, 1/2/4, Minutes of the General Purposes Committee, 21.10.1907

229 NASA, TAB, MPB, 1/2/4, Minutes of the General Purposes Committee, 18.2. and 17.3.1908.

230 NASA, TAB, TPB, 341, TA1011, Pietersburg Municipality, Minute of His Worship the

In Standerton, William Henry Dobson's (1875–1952) appointment as the first town engineer was confirmed in the second meeting of the newly-established town council on 5 December, 1903.[231] In November 1905, both Dobson and the town clerk were asked to resign because of the irregularities in financial matters.[232] In March 1906, the general purposes committee recommended that J. Edward Fitt (1869–1945), a resident engineer at the Standerton water works since August 1905, should be appointed as the new town engineer. The town council accepted the proposal unanimously.[233] In 1907, there was some municipal restructuring as the town clerk presented all the matters presented earlier by the town engineer from mid 1907. Fitt, however, stayed on as town engineer until the end of September 1908 when the post was abolished.[234] The next town engineer was appointed only in 1916.

In Volksrust, the newly-elected urban district board appointed Alfred Pike (1878–1948), general foreman of local contracting firm, as town engineer in January 1904.[235] He resigned in 1921 after being appointed town engineer of Umtali in Rhodesia. (See Figure 24.)

Figure 24. Alfred Pike, town engineer of Volksrust, 1904–1921. (*South African Who's Who*, 1908)

In Germiston,[236] the appointment of a town engineer was discussed at the town council meeting on 22 December 1903. There was some discussion about the necessity of the appointment and the level of remuneration but only two councillors out of 21 voted against the appointment.[237] Of the 63 applications, three candidates were selected. After interviewing two of them, the general purposes committee

Mayor for the Year Ending October 1908, 16.

231 NASA, TAB, MST, 1/1/1, Minutes of the Standerton Municipal Council, 5.12.1903.

232 NASA, TAB, MST, 1/1/2, Minutes of the Special meeting of the Standerton Municipal Council, 26.11.1905.

233 NASA, TAB, MST, 1/1/2, Minutes of the Standerton Municipal Council, 30.3.1906.

234 NASA, TAB, MST 1/1/3, Town Council meeting, 26.6.1908.

235 Miller, 1933, 9.

236 About history of the Germiston City Engineer's Department, see Dell, 1988, 9–27.

237 NASA, TAB, MGT, 1/1/1/1, Minutes of the Meeting of the Germiston Town Council, 22.12.1903; 'Town Engineer's Appointment'. *The East Rand Express*, 26.12.1903.

unanimously recommended, that T.A.J. Forrester, the assistant town engineer of East London, was the best qualified. (See Figure 25.) He was appointed 28 January 1904 and assumed office on 7 March.[238] Forrester and the draughtsman of the engineering department resigned in December 1905, after there had been an inquiry about the management of the department. Forrester was blamed for spending too much money and for having administrative problems.[239] The advertisement for his replacement drew 103 applications. The general purposes committee in January 1906 presented three candidates to the town council with the recommendation that John Riley (1871–1962), the chief assistant engineer of Bloemfontein, should get the position. He took up his duties on 1 March 1906.[240] Riley stayed in Germiston for only one year. In February 1907, he was

Germiston's Town Engineer.

Mr. Thos. A. J. Forrester.

This gentleman, who was chosen for the important position of Town Engineer of this municipality out of some eighty applicants, has now entered upon his duties. Like so many more of the Council's officials, Mr. Forrester is a Scotsman, having been born at Coatbridge, near Glasgow, in 1871. He commenced his education in his native town, and afterwards attended the Edinburgh University. His father having been an engineer, the subject of our sketch had ambitions in the same direction, and became a pupil-apprentice of Sir William Arrol, the eminent engineer. He finished his apprenticeship in 1892, and remained associated with the great bridge-builder till the end of 1893, after which he held other positions till he settled down as a consulting engineer in Glasgow; and here he continued his technical studies. On the outbreak of hostilities he came to this country with his regiment—the Lanarkshire Yeomanry Cavalry—and served through the earlier part of the war. He saw a good deal of active service, and received severe injuries, for which he has been granted a permanent pension. Mr. Forrester was invalided home but, finding the cold unsuitable for him, returned to South Africa and took an appointment in the East London Municipality, where he remained for eighteen months, during six of which he was Acting Town Engineer. On leaving there to take up his position in Germiston Mr. Forrester received the unanimous thanks of the Town Council for his services in the form of a resolution to that effect. Though it is premature to speculate on Mr. Forrester's fitness for his duties here, he has very favourably impressed all with whom he has come in contact, and it would seem as if the town is to be congratulated on securing the services of a gentleman who combines youth and activity with experience in his profession. The photo. from which the above was taken was the work of Mr. F. E. Pollard, of Germiston.

Figure 25. Introduction of the new town engineer of Germiston in the East Rand Express, March 12 1904.

238 NASA, TAB, MGT, 1/1/1/1, Minutes of the Meeting of the Germiston Town Council, 28.1.1903; 'Germiston Town Council'. *The East Rand Express*, 30.1.1903.

239 NASA, TAB, MGT, 1/1/1/2, Minutes of the Meeting of the Germiston Town Council, 14.12.1905.

240 NASA, TAB, MGT, 1/1/1/3, Minutes of the Meeting of the Germiston Town Council, 1.2. and 15.2.1906; 'Germiston Notes'. *The East Rand Express*, 3.2.1906.

chosen as an engineer for the Johannesburg sewage scheme and left Germiston at the end of the month.[241] James Bright (1872–1944), the assistant town engineer, was appointed as the acting town engineer with an understanding that the appointment might be confirmed as permanent.[242] He had already worked as acting town engineer before Riley started in February 1906. There were, however, discussions about doing away with the position of town engineer as part of a general reduction in staff.[243] Bright, nevertheless, continued as acting town engineer until January 1908 when his appointment was finally confirmed.[244] He served as town engineer for the next 24 years and retired in May 1932.[245]

The town councils of Heidelberg and Boksburg were at first negotiating about appointing a joint town engineer. In January 1904, the town council of Heidelberg decided to advertise for a temporary engineer. In the beginning of February, however, William Antoon ter Horst (1867–1952) was appointed as a town engineer.[246] In November 1907, the town council adopted a retrenchment policy and made a decision to dismiss the town clerk, town engineer, chief clerk, sanitary inspector, road overseer, water bailiff, and cemetery caretaker. Applications were invited for the vacancies of town clerk, sanitary inspector, road overseer, cemetery caretaker, water bailiff, and junior clerk.[247] These vacancies were filled in December and Ter Horst was appointed as a new town clerk.[248] He continued in this position at least until 1922, but it is not known when Heidelberg appointed the next town engineer.

Boksburg made a decision to appoint its own engineer after Heidelberg had appointed its own.[249] The town council received 24 applications for the position and from them two, Harry Good (1872–1933) and J.B. Roberts, were selected.

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241 NASA, TAB, MGT, 1/1/1/4, Minutes of the Meeting of the Germiston Town Council, 28.2.1907.

242 NASA, TAB, MGT, 1/1/1/4, Minutes of the Meeting of the Germiston Town Council, 28.2.1907.

243 NASA, TAB, MGT, 1/1/1/4, Minutes of the Meeting of the Germiston Town Council, 16.8.1907; 'Germiston Municipality'. *The East Rand Express*, 13.7.1907; 'Germiston Town Council'. *The East Rand Express*, 14.9.1907.

244 'Germiston Town Council'. *The East Rand Express*, 18.1.1908.

245 'Town Engineer Retires'. *The East Rand Express*, 6.5.1932.

246 NASA, TAB, MHB 1/1/1/2, Town council meetings, 18.1. and 1.2. 1904.

247 NASA, TAB, MHB 1/1/1/3, Town council meeting, 25.11.1907.

248 NASA, TAB, MHB 1/1/1/3, Town council meeting, 9.12.1907.

249 NASA, TAB, MBO, 1/1/1/1, Minutes of the Boksburg Municipal Council, 26.1.1904; 'Boksburg Town Council'. *The East Rand Express*, 6.2.1904.

MR. HARRY GOOD, A.M.I.C.E., F.R.G.S.

Mr. Harry Good, the new Town Engineer of Boksburg, whose photograph is reproduced above, was born at Brighton in 1870 and educated at Margate College. On leaving school Mr. Good was articled to his father, Mr. H. D. Good, A.M.I.C.E., Resident Engineer for the Romney Marsh District, Kent, then being appointed second assistant to the Town Engineer of Folkestone. He occupied this position for a twelvemonth, next securing the post of assistant to the Town Engineer of Maidstone. Mr. Good stayed at Maidstone for four years, leaving for South Africa in 1894. He at once came up to Johannesburg, and was connected with the firm of Messrs. Bryson and Guthrie, civil and mining engineers, of Simmonds street. In 1897 Mr. Good was appointed Acting Resident Engineer of the Beira Railway Construction, and safely escaping the deadly effects of the fever, on the completion of the work to Umtali was placed in charge of the first section of the construction of the Mashonaland Railway from Umtali to Rusapi. When the line was finished to Salisbury Mr. Good was appointed Acting Resident Engineer for the Beira Railway widening, viz., the converting of the existing gauge of 2ft. into 3ft. 6in., making it uniform with the remainder of South African railways. It was in connection with this work that Mr. Good was made an Associate Member of the Institute of Civil Engineers, whilst his wide experience of the country and its customs led to his being elected a Fellow of the Royal Geographical Society. This completed Mr. Good's railway work, and he then joined the Harbour Engineer's staff at Durban. In March, 1902, Mr. Good returned to Johannesburg, having been appointed Engineering Assistant to the Johannesburg Municipality, which appointment he held for two years until leaving to take up his present position at Boksburg.

Figure 26. Introduction of Harry Good in *The East Rand Express*, April 9 1904.

On 2 March 1904, the town council appointed Good (See Figure 26), the assistant town engineer of Johannesburg, despite recommendation that Roberts should be appointed.[250] Good's tenure as town engineer came to an end in 1913 when he resigned after difficulties with the works committee.[251]

In Krugersdorp, the appointment of the town engineer was discussed in a town council meeting on 12 January, 1904. The public works committee recommended the postponement of the appointment until some definite works were planned. The council, however, decided that the position should be advertised immediately in Cape Town, Johannesburg and local papers.[252] Of the 33 applications, the works committee on 9 February 1904 presented three candidates to the town council. R.A. Webster (1874–unknown), the assistant engineer in the Public

[250] NASA, TAB, MBO, 1/1/1/1, Minutes of the Boksburg Municipal Council, 2.3.1904; 'Boksburg Town Council'. *The East Rand Express*, 5.3.1904.

[251] 'The Boksburg Municipal Muddle'. *The East Rand Express*, 12.4.1913; A.W. Heinemann, 'The Boksburg Municipal Muddle'. *The East Rand Express*, 19.4.1913; 'Boksburg Municipal Staff'. *The East Rand Express*, 3.5.1913.

[252] NASA, TAB, MKR, 1/1/1/1, Minutes of the Krugersdorp Town Council, 12.1.1904.

Works Department of the Cape Colony, was appointed according to the committee's recommendation.[253] He continued as town engineer until 1914 when reorganisation of the department led to his resignation.

In Klerksdorp, the works committee recommended in January 1904 that Harry Hancock (1863–1921) be appointed as a town engineer. The matter was, however, referred to the general purposes committee.[254] On 2 February the committee recommended that applications should be called in local papers and the town council accepted this recommendation.[255] Hancock was duly appointed after an application process on 23 February 1904.[256] He continued as town engineer until retirement in 1917.[257]

In Potchefstroom, the appointment of a town engineer was discussed from the beginning of 1904. In February, the matter was postponed until the newly appointed town inspector, who was a fully qualified civil engineer, had assumed his duties.[258] In 5 May, however, the town inspector George Seymour was dismissed by the town council because he was arrested "hopelessly drunk" on the previous Monday night. At the same meeting, the decision was made to replace the town inspector with a town engineer.[259] There were 42 applications and after making private inquiries of the most suitable the general purposes committee presented two candidates, namely James A.G. Harrisson (1865–unknown) from Johannesburg and J.P. McMillan from Graaff-Reinet. After a vote, Harrisson was appointed from the beginning of October 1904.[260] He continued in office until 1912.

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253 NASA, TAB, MKR, 1/1/1/1, Minutes of the Krugersdorp Town Council, 9.2.1904.

254 NASA, TAB, MKD, 1/1/1/2, Minutes of the Meeting of Klerksdorp Town Council, 26.1.1904.

255 NASA, TAB, MKD, 1/1/1/2, Minutes of the Meeting of Klerksdorp Town Council, 2.2.1904.

256 NASA, TAB, MKD, 1/1/1/2, Minutes of the special Meeting of Klerksdorp Town Council, 23.2.1904.

257 There is a nice story involving Hancock as an architect in Harris, 1989. In short, Hancock had been commissioned to design a house. He finished the plans and obtained an approval. The house was built according to the plans while the owner was in Europe. When the owner returned, the house was finished, without any stairs to the first floor. There was no stairs in Hancock's plans and the owner had given strict instructions that the constructor had to follow the plans!

258 NASA, TAB, MPO, 1/1/1/2, Minutes of the Potchefstroom Town Council, 11.2.1904.

259 NASA, TAB, MPO, 1/1/1/2, Minutes of the Potchefstroom Town Council, 5.5.1904.

260 NASA, TAB, MPO, 1/1/1/3, Minutes of the Potchefstroom Town Council, 23.6. and 18.8.1904.

The last municipality in Transvaal to appoint a town engineer before 1910 was Benoni.[261] It was part of Boksburg until October 1907 and the decision to appoint a town engineer was made two years later in October 1909. The works committee was of the opinion that the work of the town had grown so much that it needed a proper supervision.[262] After interviewing three candidates, the public health and works committees recommended the appointment of William McGeorge Mason from Germiston. This was accepted after discussion on 18 November.[263] Mason resigned in February 1911.[264]

There is also one unclear case that I have not been able to find any information. South African Municipal Yearbooks mention W.A. Humphris as town engineer of Piet Retief in 1909–1914. I could not confirm this information.

Summary

In the Figure 27, the growth in the number of the municipal engineers in South Africa is presented. The numbers are presented for the every fifth year and by state. What can be seen is that the number of municipalities having an engineer started really to increase only at the end of the 1890s. One reason for this is that in the Cape Colony, the small municipalities at the Cape Peninsula nearly all appointed town engineers around this time. The other reason for the increase is that after the Anglo-Boer War also smaller municipalities in the Orange River Colony and especially in the Transvaal started to appoint engineers; before the war there were engineers only in Bloemfontein, Pretoria and Johannesburg.

The other thing that can be clearly seen is the effect of the depressions in the 1860s, 1880s and 1900s. In both the 1860s and 1880s, the number of the engineers in the Cape Colony decreased. The depression of the 1900s was different. The number of engineers in the Cape Colony still increased but in the Transvaal it decreased. I will discuss depressions and their effects more in Chapter 9.

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261 About history of the Benoni's Town Engineer's Department, see Anon., 1991, 5–16.

262 NASA, TAB, MB, 1/1/3, Minutes of the Benoni Town Council, 22.10.1909; 'Benoni Town Council'. *The East Rand Express*, 23.10.1909.

263 NASA, TAB, MB, 1/1/3, Minutes of the Benoni Town Council, 18.11.1909; 'Benoni Town Council'. *The East Rand Express*, 20.11.1909.

264 NASA, TAB, MB, 1/1/4, Minutes of the Benon Town Council, 16.2.1911.

If we consider the development in the number of municipalities and the appointment of municipal engineers the case of the Orange Free State immediately draws the attention. There were 26 municipalities before the first municipal engineer was appointed in Bloemfontein. The main reason for this was that municipalities were small and poor. Some of them, like Bloemfontein, had a water bailiff taking care of water supply. It seems that during the 19th century municipalities either did not see any necessity to appoint any municipal engineer or could not afford it. Considering the development in the decade after the Anglo-Boer War, I tend to believe the latter explanation.

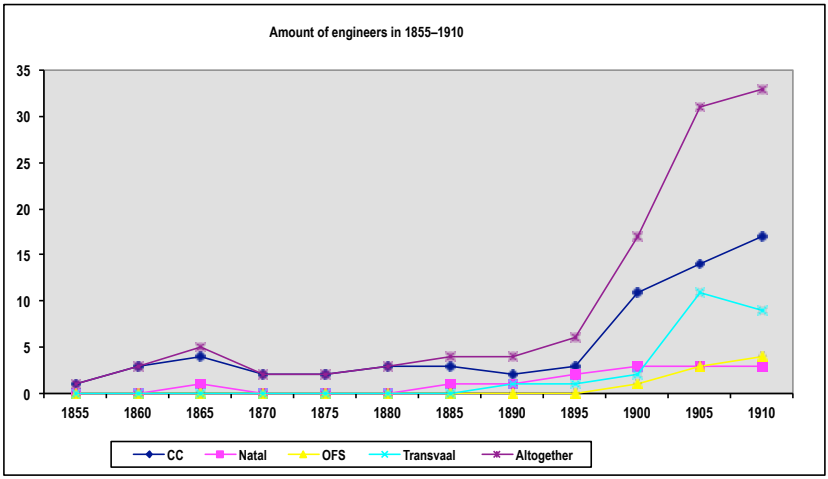

Figure 27. The growth of the number of the municipal engineers from 1855 to 1910.

2 Background and training of the engineers

Three different aspects of the engineers' background will be looked at this chapter. First the nationality and the age at the time of the appointment will be looked at. The second part of the chapter will deal with the educational and professional background of the engineers. The last part will examine the previous positions of the engineers at the time that they were appointed.

Background

From the second half of the 1850s, up to 1910, there were 73 municipal engineers in 22 municipalities in the Cape Colony, 15 in four municipalities in Natal, 10 in five municipalities in the Orange Free State and 28 in 12 municipalities in the Transvaal. Altogether there were 120 persons in 43 municipalities; six engineers had a position in two of the municipalities. (See Appendix 1.)

If we look at the origins of the engineers, it is not surprising that most of them came from the English-speaking world. Of the 88 engineers whose origins are known only four were from outside of the British Empire; August Karlson was from Sweden, W.A. ter Horst from Holland, Wilhelm Westhofen from Germany and Ernst Lutz was born in Hungary. And if we look at the names of the 32 engineers whose birthplace or nationality is unknown, there is a strong reason to believe that most of them were either English or from some English-speaking country; the only exception is C. Grellert who most likely was from Germany.

The English engineers were the largest single group, namely 47 engineers. George R. Grey (See Figure 28) and W.R.H. Chipperfield, who were born in India, and Woodford Pilkington, who was born in Trinidad, are also included in this group because their fathers were either in colonial service or army. There were 26 engineers from the other parts of the British Isles, namely 14 from Scotland,

Figure 28. George R. Grey, town engineer of Johannesburg, 1892–1893. (*Men of the Times*, 1905, 155)

eight from Ireland and four from Wales. Five of the engineers were from Australia and one from Canada. T.W. Cairncross, George Pigot Moodie, F. Walton Jameson, W.W. Cato, and W.E. Robarts were born either in the Cape Colony or in Natal. There is a noticeable absence of engineers born in the United States. This is strange, since quite a lot of them were attracted to South Africa as mining engineers, so there might be some of them among the engineers whose backgrounds are unknown. On the other hand, it might be entirely possible that all these American engineers stayed in private enterprise without even considering municipal positions. It would need going through the background of all the engineers who applied for the open positions in municipalities before you could say for certain if there were Americans amongst them or not.

When looking at the average age of the engineers at the time of their first appointment, it should be recognised that we are missing this information for over one fourth of the engineers. Of the engineers whose age is known, 22 where appointed when they were under 30, there were 38 that were between 30 and 39, 20 that were between 40 and 49, five between 50 and 59 and one over 60. Wilhelm Westhofen had just retired as a head of the Public Works Department of the Cape Colony at the age of 63 when he was appointed as consulting engineer for Kalk Bay-Muizenberg. The youngest one to be appointed was Hugh Master Ladell in Wynberg. He was 22 at the time of his appointment. The average starting age was 36.

Training of the engineers

The first institute for civil engineers in Britain was created in 1818. Its objectives were, according to its royal charter granted in 1828, to improve the means of production and of traffic, and to protect property. Civil engineering courses were started in King's College London in 1838 and in 1840 the University of Glasgow

established the first chair of civil engineering in Britain. The first professional examinations in civil engineering were held in 1856. Military engineers had their own schools.[1]

In South Africa, the training of mining engineers started in 1894 in Cape Town and Kimberley, but the first degrees in engineering were only conferred in 1918. Most of the engineering needs were met by engineers from Europe, especially the United Kingdom. The early engineers from the United Kingdom were mostly trained via the apprenticeship system, there being no formal training as such in municipal engineering. Even if an engineer held a university degree it was usually in mathematics or another related field. Municipal engineering only gained public recognition after breakthroughs in the understanding of disease transmission and improved public health measures during the second half of the 19th century. The first formal professional institution for municipal engineers in England was formed in 1873 and the first professional examinations for municipal engineers were offered in 1877.[2]

Unfortunately, the educational background of 50 engineers in this research is unclear. It is, nevertheless, highly probable that they had some form of training. There are seventeen engineers who had some formal training; eight of these had a university degree.[3] T.W. Cairncross was educated first at the South African College and then at Glasgow University.[4] G.B. Laffan received training as a civil engineer at Queen's College, Cork, and then obtained a qualification in civil engineering from the Queen's University.[5] W.T. Olive obtained the certificate of proficiency in Engineering Science at Glasgow University.[6] August Karlson had a diploma as civil engineer from the Technical High School of Stockholm.[7] W.A. Palliser was educated at the Liverpool College and Victoria University in Liverpool.[8] H.D. Badcock had a master's degree in mathematics from Oxford

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1 Home, 1997, 40.

2 Haarhoff, 2009; for the development of engineering profession in Britain, see Buchanan, 1989.

3 J.P. Mumford is also said to have educated in Trinity College but it is not known if this is one in Cambridge or if he graduated there.

4 Obituary, Cairncross, 1918.

5 Institute of Civil Engineers, Candidate Circulars, George Bastable Laffan.

6 Institute of Civil Engineers, Candidate Circulars, William Thomas Olive.

7 Report of the Witwatersrand Water Supply Commission, 123; Institute of Civil Engineers, Candidate Circulars, August Karlson.

8 *South African Who's Who* 1908, 357.

University.[9] T.A.J. Forrester had studied at Edinburgh University.[10] And finally James Maden had studied engineering at the South African College.[11]

Besides these, four engineers had attended universities, but did not graduate. James Cameron studied mathematics and chemistry at a university in Perth.[12] D.C. Leitch had attended engineering classes at Owens College, Manchester, and later studied mathematics, physics and engineering at Edinburgh University.[13] Thomas Stewart had attended civil engineering classes at Glasgow University, and lectures on mathematics, natural philosophy, applied mechanics, chemistry (theoretical and practical), and geology at Anderson College and the College of Science and Art, Glasgow.[14] F.W. Jameson took a course at the Technical University of Nottingham.[15]

Two of the engineers had a diploma from the polytechnic school, Wilhelm Westhofen from the Polytechnic School of Carlsruhe and Ernst Lutz from Zurich Polytechnic Institute.[16] D.P. Howells got his training at Swansea Technical College and A.H. Waller in Bradford Technical College.[17] Alfred Pike had studied building construction, engineering and surveying at Manchester and Higginbottom Technical Schools.[18]

The most typical training was through the apprenticeship system. Of all the engineers covered in this book 56 are known to get their training in this way and ten (Cairncross, Laffan, Forrester, Maden, Cameron, Leitch, Stewart, Jameson, Howells and Waller) of the above-mentioned seventeen engineers with formal education still went through this training. Eight of the engineers, Woodford Pilkington, A.H. Reid, John F.E. Barnes, Thomas Callen, R.O. Wynne-Roberts, F.B. Drake, Harry Good and G.S. Burt Andrews, were trained by their own fathers. There were still two other, James J.A. Flower and James Maden, whose

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9 Gray, 1939, 243.

10 'Germiston's Town Engineer'. *The East Rand Express*, 12.3.1904.

11 Institute of Civil Engineers, Candidate Circulars, James Maden. In candidate circular it says that Maden studied engineering in 1894–95. This happended in the department of science since the independent Faculty of Engineering was established only in 1903.

12 Murray, 2009, 40.

13 Institute of Civil Engineers, Candidate Circulars, Donald Calder Leitch.

14 Institute of Civil Engineers, Candidate Circulars, Thomas Stewart; Murray, 2008, 36–39.

15 'City Engineer'. Diamond Fields Advertiser, 21.7.1920.

16 Institute of Civil Engineers, Candidate Circulars, Wilhelm Westhofen; Ploeger, 1980, 2.

17 Institute of Civil Engineers, Candidate Circulars, Daniel Peter Howells; Natal Who's Who 1906, 208.

18 *South African Who's Who* 1908, 372.

fathers were also engineers. They are both interesting cases. When James J.A. Flower was a town engineer of Cape Town in 1872–1873, he was all the time on leave and most of the time his father, James Flower Sr., was acting for him.[19] Two James Madens, father and son, were serving as town engineers about the same time, father in Claremont and son in King Williams Town. The elderly James Maden is also the only one of the engineers known to be self-educated. According to the South African Who's Who, he was "educated self at home and 2 quarters at Night Class".[20]

It is also interesting to examine in which branch of engineering the engineers had their education and most of their early working experience. (See Appendix 2.) We do not have that information on 44 of them. Of the remaining, 37 were associated with the broad field of civil engineering. The other two major groups were mechanical engineers (11) and railway engineers (12). Seven of the engineers were originally surveyors and five architects. Three of them, Peter Penketh, Charles Rees and James Tennant, were working for the Royal Engineers, R.O. Wynne-Roberts was trained as gas engineer, and James Cameron and James Maden, the father, were self-educated as engineers. Three cases that are difficult to define are E.B.J. Knox, William Henry Miles and Robert Menmuir (See Figure 29), who were already from the beginning of their careers, involved with almost all branches of engineering. There is, of course, overlap between these categories; you could, for instance, consider all railway engineers to be mechanical engineers. Or you could separate water and sewerage engineers as being more specialised as civil engineers.

Figure 29. Robert Menmuir, town engineer of Woodstock, 1901–1914. (*South African Who's Who*, 1908)

[19] WCPA, 3/CT 1/1/1/24, town council minutes, 12.2.1873.
[20] *South African Who's Who* 1908, 259.

Positions before being appointed

If we look at the positions of the engineers before their appointments, it is unfortunate that in 35 cases this is not known. What is known is that 19 either had a private practice or were working for a private firm at the moment of their appointment. For instance, the first three town engineers of Johannesburg, W.H. Miles, G.R. Grey and Charles Aburrow, all had their own practices when appointed. In Cape Town, James Cameron, Peter Penketh and James Flower, all came from private business. W.E. Robarts, who was appointed consulting borough engineer of Durban in 1887, can be said to belong in his own group. Although he had been town surveyor of Durban in the 1870s and had his own practise, at the time of the appointment he had just ended his year as a mayor of Durban and left the town council.[21]

Thomas Bennett and August Karlson also fall somewhere between this group and those working for public institutions. Bennett was the chief engineer of the Cape Town District Waterworks Company when he was appointed town engineer of Kalk Bay, and Karlson was the chief engineer and manager of the Pretoria Waterworks Company when he was appointed town engineer of Pretoria.

When appointed 44 of the engineers were working for some municipality. Two of them, G.F. Newsam and R.S. Webb, were town clerks when they were appointed to be also town engineers.[22] There are three cases where the engineer moved as town engineer from one South African municipality to another. In 1897, John Laughton went from King Williams Town to Port Elizabeth and, in 1899, W.A. Palliser left Queenstown for East London.[23] F.W. Jameson even changed the colony when he went in 1909 from Pietermaritzburg to Pretoria.[24]

There were seven engineers who had the position of borough surveyor in England before getting an appointment for town engineer South Africa. The only one to have already the position of town engineer in England was John Fletcher.[25] Thomas Callen was borough surveyor in Kimberley when his

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21 TBD, 3/DBN 1/1/1/1/19, Town Council meeting, 7.12.1887.
22 WCPA, 3/ELN 1/1/1/4, Municipal Council meeting, 10.3.1881; Bateman, 1961, 9–10.
23 WCPA, 3/KWT 1/1/1/13, Borough Council meeting, 27.7.1897; WCPA, 3/QTN 1/1/1/9, Town Council meeting, 28.12.1900.
24 NAB, 3/PMB 1/1/8, Town council special meeting, 15.4.1909.
25 TBD, 3/DBN 1/1/1/1/20, Town Council meeting, 4.4.1889.

designation was changed to that of borough engineer.[26] Eleven of the engineers were either deputy or assistant town engineers in South Africa when they were appointed; the only one to have this position and come directly from England was R.W. Menmuir.[27] H.M. Ladell also came directly from England, but he was an assistant borough surveyor and waterworks engineer.[28] There were three waterworks engineers, J.H. Wicksteed, F.W. Jameson and James Younger, who were appointed as town engineers.[29] W.J. Mason was chief surveyor for Port Elizabeth when he was appointed in Uitenhage.[30] Among the others employed by municipalities were four resident engineers on waterworks, three engineering assistants, two building inspectors, two sanitary inspectors, two clerks of public works, one resident engineer of drainage works and one municipal inspector. You probably could also include in this group J.P. McMillan, who was working for the Edinburgh District Water Trust.

The next category was those employed by the colonial governments. There were altogether 14 of them, nine for the Cape Colony, three for the Transvaal, one for Natal and one for Rhodesia. Of those working for the Cape Colony, five were in the Public Works Department and four working for the Cape Railways. In the Transvaal, there was one working for the Public Works Department and the Railways, and a third one working for the Department of Mines. In Natal, J.F.E. Barnes was government surveyor before becoming the first borough engineer of Durban.[31] J.A.G. Harrisson was working for government railways of Rhodesia when he was appointed town engineer of Potchefstroom.[32] I presume that among the 36 unknown cases there are probably many belonging to this group.

Four of the engineers were working directly for the British government. D.C. Leitch was the Assistant Director of the Architectural and Engineering Works in the Admiralty, Charles Rees and James Tennant belonged to the Royal Engineers and E.W. Attridge was involved in naval dock construction in Simon's Town.[33]

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26 WCPA, 3/KIM 1/1/1/1, Town Council meeting, 23.2.1887.

27 WCPA, 3/WSK 8, Town Council meeting, 17.6.1901.

28 WCPA, 3/WBG 5, Town Council meeting, 7.10.1902.

29 Wicksteed, 1883, 232–233; NAB, 3/PMB 1/1/7, Town council special meeting, 20.3.1902; WCPA, 3/CT 4/2/1/1/12, 3117/7, James Younger, town engineer, to John Cook, city engineer, 27.12.1905.

30 WCPA, 3/UIT 1/1/1/28, Town Council meetings, 16.4, 19.4 and 25.4.1907.

31 TBD, 3/DBN 1/1/1/1/16, Town Council meeting, 17.1.1882.

32 *South African Who's Who* 1915, 157.

33 NASA, TAB, GOV, 17, GEN 356/02, Fred Graham to D.C. Leitch, 15.5.1902; WCPA, 3/

Most of the engineers were already in South Africa or had earlier experience from there when appointed. Only 11 of them are known to come directly from the British Isles and of these only W.T. Olive had working experience from abroad when appointed.[34] Three of these engineers, R.O. Wynne-Roberts, A.S. Butterworth (See Figure 30) and F.B. Drake, had already earlier applied for a position of town engineer in the Cape Colony before getting appointed.

Figure 30. A.S. Butterworth, town engineer of Port Elizabeth, 1902–1917. (*Men of the Times*, 1906, 35)

Summary

Most of the engineers whose origins are known came from Europe. All six known cases outside Europe and South Africa came from Australia and Canada. Only five of the engineers were born in the current South Africa. Of the 77 engineers coming from Europe, only four did not come from the British Isles. This is no wonder considering that the Cape Colony and Natal were part of the British Empire during the whole time period. Also in the Orange Free State and the Zuid-Afrikaanse Republiek there were altogether only seven engineers in three municipalities before the Anglo-Boer War; two of the four engineers not from the British Empire were among these seven.

Unfortunately the educational background of only 70 engineers is known. Nevertheless, considering the fact that most of the other 50 engineers apparently were qualified engineers, it is safe to assume that most of them had gone through at least the apprenticeship system. Of the 70 engineers, one fourth had some higher education than apprenticeship system, and even ten of these had been apprenticed after this higher level education. It was also not uncommon that a person was apprenticed to his father.

CT 1/1/1/24, Town Council meeting, 29.8.1873; WCPA, 3/SMT 1/1/1/6, Town Council meeting, 11.10.1900.

[34] Institution of Civil Engineers, Candidate circulars, William Thomas Olive.

It is not surprising that most of the engineers were civil engineers but still there is a strong contingent of mechanical, especially railway, engineers among them. There were also, especially in earlier years, surveyors and architects among them. Half of the engineers whose earlier career is known were already working for some other lower position in municipal organizations. Nevertheless, there were also many who came from private companies or from government service.

3 Why municipalities decided to appoint an engineer

In this chapter, the reasons for appointing municipal engineer will be analysed. First the reasons for appointing the first municipal engineer will be looked at. The second part of the chapter will look at the reasons for re-establishing the position of municipal engineer after it had been abolished, for decades in some cases.

The first municipal engineer

What were the reasons behind the decision to appoint the first town engineer? In December 1901, William Runciman, Member for Legislative Assembly and former mayor of Simon's Town, gave a lecture of the past, present and future of Simon's Town. He referred also to the appointment of the Simon's Towns first town engineer two months earlier and said that he hoped that now they could avoid "mistakes made in the past owing to the amateur efforts of the Council to tackle the various schemes."[1]

When looking at answers to the question presented, we can assume that many councillors were thinking according to the same lines than Runciman. Accordingly, in most of the cases the need for the appointment was based on general need of public works. There was for instance a need for proper supervising of public works in general. There might have been some more specific needs but the main reason mentioned was the need of public works. This was the reason in 24 cases out of 42. Moreover, I would speculate that most of the ten municipalities where the reason is unknown would also belong to this category.

[1] Anon., 1979, 106.

In two municipalities, Durban in 1882 and Umtata in 1909, the appointment was specifically made because of the needs of water supply.[2] In many other municipalities, the needs of water supply were also high in the list, but only in the two mentioned cases the appointment was based primarily on the needs of water supply. The only other municipality where the appointment was based on a very specific need, was Pietermaritzburg in 1851. In Pietermaritzburg, a proper town survey was needed and a surveyor was appointed. He was, as an afterthought, appointed also as an engineer for the borough.[3]

In four cases, the first town engineer was only an earlier official whose designation was changed. In Kimberley, Thomas Callen was clerk of works, in Newcastle, George Jenkins foreman of works, in Claremont, James Maden municipal inspector and in Uitenhage, Walter J. Mason (See Figure 31) superintendent of works when their designations were changed in 1887, 1900, 1901 and 1907 respectively.[4]

Figure 31. Walter J. Mason, town engineer of Uitenhage, 1907–1911. (*South African Who's Who*, 1908)

The appointment in Bloemfontein was the most peculiar of the appointments. The municipality apparently was not even planning to appoint a borough engineer in 1898 but was forced to do the appointment. They needed a resident engineer for their waterworks and H.F. Peet was appointed for the position. He, however, refused to accept the position unless a longer tenure was offered. In this situation, the town council offered him the position of borough engineer for two years. After negotiations, Peet accepted the position when the tenure was fixed for four years.[5]

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2 TBD, 3/DBN 1/1/1/1/15, Town Council meeting, 27.9.1881; Durban, Mayor's Minute, 1882, 7; WCPA, 3/UTA 1/1/1/17, Municipal council special meeting, 14.9.1909.

3 Meineke & Summers, 1983, 14–15.

4 WCPA, 3/KIM 1/1/1/1, Town Council meeting, 23.2.1887; Baylis, 1951, vol. 3, 5; South African Who's Who, 1908, 259; WCPA, 3/UIT 1/1/1/29, Town council meeting, 26.11.1907.

5 VAB, MBL 1/1/1/9, Town council meetings, 16.6., 7.7., 11.7., and 21.7.1898.

Later appointments

In six municipalities, Pietermaritzburg, Grahamstown, Port Elizabeth, Graaff-Reinet, East London and Newcastle, there were periods when there was no town engineer. In Pietermaritzburg, there were three gaps, in Grahamstown, Port Elizabeth and Graaff-Reinet two gaps and in East London and Newcastle one gap during the examination period. When looking at the reasons for appointing a new engineer after, in some cases, quite a long time period of vacancy, it can be seen that the reasons are mostly the same than appointing the first town engineer.

Of the altogether eleven appointments in this category, in four cases, Pietermaritzburg in 1864 and 1882, Grahamstown in 1879, and East London in 1897, the reason was the need for public works.[6] In four cases, Port Elizabeth in 1881 and 1897, and Graaff-Reinet in 1881 and 1901, the need for re-appointment was based on the needs of water supply.[7] In two cases, Pietermaritzburg in 1893 and Grahamstown in 1907, it was the change of designation caused by the need for public works.[8] In Newcastle, the reason for the appointment of town engineer after five years hiatus is unknown.

There are also seemingly gaps in King Williams Town and Queenstown, but since it is not known if there was an engineer during these gaps or not, they are not included in this analysis.

Summary

The main reason for appointing the first municipal engineer was clearly the need to have a properly qualified person to supervise public works; town councillors wanted in most cases to avoid mistakes made in the past when there was no properly qualified person to advise them. It is also clear that in most cases, it was

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6 NAB, 3/PMB 1/1/3, Town Council meeting, 9.3.1864; NAB, 3/PMB 1/1/5, Town Council meeting, 27.11.1882; Gibbens, 1982, 154–155; WCPA, 3/ELN 1/1/1/10, Municipal Council meeting, 12.5.1897.

7 WCPA, 3/PEZ 1/1/1/31, Town Council meeting, 2.2.1881; WCPA, 3/PEZ 1/1/1/17, Town Council meeting, 14.7.1897; WCPA, 3/GR 1/1/1/6, Town Council meeting, 25.3.1881; WCPA, PWD 2/10/27, M19/32, McMillan to the secretary of public works, 4.5.1903.

8 Meineke & Summers, 1983, 20–21; WCPA, 3/AY 1/1/1/15, Town Council meeting, 21.8.1907.

more the general need of public works than the need for some more specific area. When looking at the appointments after periods of vacancy, the needs for water supply are more prominent.

4 Applying for the position of municipal engineer

The variation in the number of applications, where known, is the first topic of this chapter. In the second part the applications are examined in more personal detail. In addition, the losing applicants in some cases, and the most prolific applicants will be discussed.

Number of applications

Throughout South Africa, there were at least 80 cases where applications were invited during the study period. The actual number of applications is known in 50 cases. The largest numbers of applications were 130, received in Grahamstown in 1907, and 128, in Kroonstad in 1904.[1] In the case of Grahamstown, they invited applications for a clerk of works. The large number of applicants is probably explained by the fact that the number of actual engineers among the applicants was not that high. In Kroonstad, on the other hand, they were looking for a town engineer, so most of the applicants should have been engineers – an amazingly high number.

There were four other cases where the number of applications was probably over 100. In Cape Town in 1881, there were 116 applications.[2] At the same year in Port Elizabeth, there were 94 applications from Britain and an unknown number of applications from South Africa, so the total number was most likely over 100.[3] The other two cases were East London in 1903, 105 applications, and Germiston

1 Grahamstown, Mayor's Minute, 1908, 4–5; Men of the Times, 1906, 528.
2 WCPA, 3/CT 1/1/1/31, Town Council meeting, 2.2.1881.
3 Herholdt, 1987, 3.

in 1906, 103 applications.[4] The average number of applications in these 50 cases is 41, underlining the fact that having over 100 applications was really special. In Port Elizabeth there were 97 applications in 1897, in Woodstock 87 applications in 1898, in Durban 80 applications in 1889, and in Cape Town 74 applications in 1901, so in 40 cases the number of applications was less than 70.[5]

On the other end of the scale, there were 11 cases having less than 15 applications, and nine cases having 15–20 applications. All three application rounds in Cape Town in the 1850s are among these cases, in 1854 there were eight, in 1855 ten and in 1857 three applications.[6] There were still only five applications in 1872 when the position in Cape Town was vacant again.[7] The following year, however, there were a whopping 50 applications.[8] This sudden increase is difficult to explain unless this was the first time that the position was advertised in England. Yet, in 1875, the number of applications dropped again to only 11.[9]

Other cases having less than 15 applications were Port Elizabeth in 1898 and Umtata in 1909 with four applications, Pietermaritzburg in 1864 with five applications, Graaff-Reinet in 1881 with six applications, King Williams Town in the same year with nine applications and Durban in 1887 with 13 applications. [10] The case of Port Elizabeth is especially strange since just a year earlier there were 97 applications. Moreover, none of the four applicants was appointed.[11]

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4 WCPA, 3/ELN 1/1/1/14, Special meeting of the Committee of the Council, 27.7.1903; NASA, TAB, MGT, 1/1/1/3, Minutes of the Meeting of the Germiston Town Council, 1.2.1906.

5 WCPA, 3/PEZ 1/1/1/17, Town Council minutes, 2.9.1897; WCPA, 3/WSK 7, Town council meeting, 19.12.1898; TBD, 3/DBN 5/2/6/1/7, Standing Committee meeting, 2.–3.4.1889; 3/WCPA, 3/CT 1/1/1/54, Town Council meeting, 24.10.1901, and Special meeting, 28.10.1901.

6 WCPA, 3/CT 1/1/1/15, Board of Commissioners meeting, 15.3.1854; WCPA, 3/CT 1/1/1/16, Board of Commissioners meeting, 26.12.1855; WCPA, 3/CT 1/1/1/17, Board of Commissioners meeting, 18.11.1857.

7 WCPA, 3/CT 1/1/1/23, Town Council meeting, 6.3.1872.

8 WCPA, 3/ CT 1/1/1/24, Town Council meeting, 4.7.1873.

9 WCPA, 3/CT 1/1/1/27, Town Council meeting, 25.8.1875.

10 There might have been more in Durban. Thirteen is the number of applications found in letters received by town clerk. TBD, 3/DBN, 2/1/1/57 and 2/1/1/58.

11 WCPA, 3/PEZ 1/1/1/18, Town council minutes, 9.11.1898.

Competition amongst applicants

When looking at the application process it is also interesting to look at the losing applications. I am concentrating here only on the engineers who were at some point appointed as town engineers. When cross-referencing the application processes and applicants, the first case that draws attention is Johannesburg in 1893. It was the third time Johannesburg was recruiting a town engineer and received 33 applications. In the final round against Charles Aburrow, who was eventually appointed, was E.B.J. Knox, who had earlier been acting town engineer in Cape Town and in Johannesburg. Incidentally, Knox was also one of the final three candidates in Pietermaritzburg five years later. Among the other applicants were George R. Grey, the previous town engineer, G.S. Burt Andrews, the future town engineer, William Dunbar, former borough engineer of King Williams Town, John Laughton, future town engineer of King Williams Town and Port Elizabeth, A.H. Waller, future town engineer of Pietermaritzburg, and Ernst Lutz, future town engineer of Pretoria.[12] Of all the cases where the names of all the applicants are known, this is the one having the greatest number of former, current or future town engineers among the applicants.

There are four other cases where it is known that there were at least four applicants that were former, current or future town engineers. There might have been more in Bloemfontein in 1908 and in Pietermaritzburg in 1909; the town council minutes, however, did not disclose the names of all the applicants. Nevertheless, in Port Elizabeth in 1897 in a final round against John Laughton who was elected, was R.O. Wynne-Roberts, who was appointed as city engineer of Cape Town in the following year. Among the other applicants were A.S. Butterworth, who was appointed town engineer of Port Elizabeth in 1902, Walter Bond, who was appointed town engineer of East London in 1903, and R.H. Heward, who was appointed town engineer of Green Point and Sea Point in 1899.[13] In Potchefstroom in 1904, the names of all the applicants are also known. J.P. McMillan, former town engineer of Graaff-Reinet, lost the final vote against J.A.G. Harrisson (See Figure 32). Among other applicants were George

12 *The Star*, 25.3.1893.

13 WCPA, 3/PEZ 1/1/1/17, Town Council minutes, 2.9.1897.

Figure 32. J.A.G. Harrisson, town engineer of Potchefstroom, 1904–1912. (*South African Who's Who*, 1908)

Jenkins, borough engineer of Newcastle, and W.N. Ashplant and James Younger, two future town engineers of Pietersburg.[14]

In Bloemfontein in 1908, in the first round among the applicants were F.B. Drake, town engineer of Mowbray, Frank Brown, town engineer of Kroonstad, George A. Stewart, who was appointed in the second application round in the same year, and J.J. Niven, who was the following year appointed town engineer of Pietermaritzburg.[15] When Niven was appointed in Pietermaritzburg, the other final applicants were Drake again, Ernest Grubb, town engineer of Grahamstown, W.F. Malloch, future town engineer of Bethlehem, and John Riley, former town engineer of Germiston.[16]

The names of some engineers crop up regularly in the applications for the position of town engineer. The busiest applicant was A.H. Waller, borough engineer of Pietermaritzburg in 1896–1898. As already mentioned, he applied for the position in Johannesburg in 1893. His most active period, however, was 1898–1901, after he resigned from Pietermaritzburg. Immediately after resigning he applied for the position in Cape Town and in Woodstock. In both cases, Waller was one of the final three candidates.[17] After a brief period in England, he returned to South Africa. In 1900, Waller applied for the position in Wynberg and was among the final eight from 23 applicants.[18] The following year, he applied once more for Woodstock and was again one of the final three.[19] Around this time, Waller was appointed assistant borough engineer of Durban, a position he had held before going to Pietermaritzburg. He stopped applying for the other positions until the 1910s. Waller left Durban in 1912 and served later

[14] NASA, TAB, MPO, 1/1/1/3, Minutes of the Potchefstroom Town Council, 18.8.1904.
[15] VAB, MBL 1/1/1/14, Town Council meeting 5.3.1908.
[16] NAB, 3/PMB 1/1/8, Town Council special meeting, 8.6.1909.
[17] WCPA, 3/CT 1/1/1/47, Town Council meeting, 11.8.1898; WCPA, 3/WSK 7, Town council meeting, 19.12.1898.
[18] WCPA, 3/WBG 4, Town Council meeting, 20.8.1900.
[19] WCPA, 3/WSK 8, Town Council meeting, 17.6.1901.

as town engineer in Bulawayo and in Gwelo in Rhodesia, and in Graaff-Reinet in Cape Colony.

The other engineer noted for his number of applications is James Younger, town engineer of Pietersburg in 1905–1907. His election to Pietersburg was already a complicated matter. He sent an application in August 1905 but did not get into the final round that time. Soon thereafter, in October, the old applications were gone through again since the engineer appointed, W.N. Ashplant, had resigned. This time Younger was one of the final three but was not elected. In December of the same year, the old applications were again dug out since John Anderson was dismissed, and this time Younger was appointed.[20] In the meantime, Younger had applied for the vacant position in Potchefstroom but was not selected for the final rounds.[21] When still in Pietersburg, he applied for the position in Germiston in 1906 and was one of the three final candidates.[22] Younger left Pietersburg in 1907 to work for the Transkeian General Council in Umtata. During 1906, he had already applied for the position in East London, but for various reasons the applications came under consideration only in autumn 1907. Younger was among the final six candidates and was one of three getting votes in a ballot.[23] Later Younger was town engineer of Krugersdorp on two occasions, and also town engineer of Brakpan and Vryheid.

There are some other cases that need to be mentioned. In Cape Town, Peter Penketh was appointed town engineer in 1857; he had already applied for the position two previous times in 1854 and 1855.[24] Charles Rees, who got problems with the town council in 1875 after it was found out that he was also getting salary from Royal Engineers, applied for the position of town engineer in Cape Town every time it was vacant until 1881.[25] Arthur Henry Reid, who later attained fame as architect, still applied for the position of borough engineer in Pietermaritzburg

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20 NASA, TAB, MPB, 1/2/1, Minutes of the General Purposes Committee, 10.9., 8.11. and 13.12.1904.

21 NASA, TAB, MPO, 1/1/1/3, Minutes of the Potchefstroom Town Council, 18 .8.1904.

22 NASA, TAB, MGT, 1/1/1/3, Minutes of the Meeting of the Germiston Town Council, 1.2.1906.

23 WCPA, 3/ELN 1/1/1/17, Municipal Council meeting, 26.6.1907.

24 WCPA, 3/CT 1/1/1/15, Board of Commissioners meeting, 15.3.1854; WCPA, 3/CT 1/1/1/16, Board of Commissioners meeting, 26.12.1855.

25 WCPA, 3/CT 1/1/1/31, Town Council meeting, 2.2.1881.

in 1882 after his dismissal from Grahamstown, and concentrated on the career in private business only after this.[26]

William Dunbar, who was appointed town engineer of King Williams Town in 1881, had at the same time applied also for the same positions in Cape Town and Graaff-Reinet.[27] After being appointed into King Williams Town, he withdrew his Graaff-Reinet application. From King Williams Town, he went to work for the Johannesburg Waterworks Company and applied for the position of town engineer of Johannesburg in 1892 and 1893.[28] G.S. Burt Andrews applied for the position of town engineer of Johannesburg every time it was vacant since 1892 until he was finally appointed in 1905. Thomas Callen, town engineer of Kimberley for over 30 years, applied for the position in Johannesburg in 1892, after only seven years in Kimberley.

All in all, you can say that many of the engineers who were at some point in their career appointed town engineers in some municipality, also had losing applications earlier or later parts of their career. During the time period under examination, there are four engineers, John Laughton, W.A. Palliser (See Figure 33), E.J.D. Brooks and F.W. Jameson, who were town engineers in two separate municipalities. Besides these, E.B.J. Knox was acting town engineer in two separate municipalities; W.T. Olive was city engineer in one and acting in one; and T.A.J. Forrester acting in one and town engineer in one.[29]

Figure 33. W.A. Palliser, town engineer of Queenstown, 1899–1901, and of East London, 1901–1902. (*South African Who's Who*, 1908)

[26] NAB, 3/PMB 1/1/5, Town Council special meeting, 27.11.1882; Obituary, Reid, 1922, 1–5.

[27] WCPA, 3/CT 1/1/1/31, Town Council meeting, 2.2.1881; WCPA, 3/GR 1/1/1/6, Town Council meeting, 25.3.1881.

[28] *The Star*, 2.12.1892; *The Star*, 25.3.1893.

[29] There are of course quite many engineers who started their careers during this time period and had town engineer's position in other municipalities after 1910 and some who had similar positions outside South Africa but that is not a topic of this research.

Summary

The position of town engineer was a much sought-after position, drawing an average of circa 40 applicants at a time. There was, however, quite a lot of variation in the numbers of applications. The greatest known number was 130 applications in Grahamstown in 1907; in the other end of the scale are Port Elizabeth in 1898 and Umtata in 1909 with only four applications. The low number of applications in Port Elizabeth seems especially strange since in the previous year there were 97 applications for the same position.

It can be also clearly seen both from the number of applications and the engineers who applied that a position in certain municipalities, like for instance in Johannesburg, was much more inviting than a position in some smaller municipality. In some cases, engineer needed to apply multiple times to be appointed in a certain position. There were also some engineers who were applying very actively in certain time periods for the open positions.

In many cases the numbers may have been inflated by applicants with doubtful qualifications. The definition of an engineer, especially during the earlier part of the examination period, was very fluid, and many of the applicants were certainly not members of the Institute of the Civil Engineers in London or any other corresponding institutions. Nevertheless, the competition was fierce with good candidates to choose from.

5 Appointment process

In this chapter, various aspects of the whole application process will be looked at. First, the cases where applications were not called for will be analysed. After that, the response to advertised positions will be considered. The selection of the final candidates for town councils will follow. The final part of the chapter will analyse the decision-making process in town council meetings.

Appointment without applications

When municipalities wanted to appoint a new town engineer, they usually advertised the position. This, however, did not happen every time; there are some exceptions. There are at least three cases where the appointed engineer was either selected or recommended by some other instance. In Grahamstown during 1859, Robert Hoggar was recommended for the position of town engineer by a local judge of peace.[1] The town council of Harrismith was using George B. Laffan, former borough engineer of Pietermaritzburg, as consulting engineer on water supply and other public works issues. In September 1903, he was asked to engage a competent man to carry out public works. At the beginning of November, Laffan informed the town council that W.J. Schooling would enter upon his duties on 18 November.[2] In Parys, there was a similar situation in 1909, when the town council started to discuss about appointing an own engineer. W.C. Gibbons, resident engineer of Parys water works, strongly recommended William McKenzie, who then was appointed.[3]

1 WCPA, 3/AY 1/1/1/5, Board of Commissioners Meeting, 28.1.1859.
2 VAB, MHT 1/1/4, Town Council meetings, 21.9., 15.10. and 10.11.1903.
3 VAB, MPA 1/1/2, Town Council meetings 11.2., 4.3. and 3.6.1909.

There are also a number of cases where the title of a person working for the municipality was changed to that of a town or borough engineer. This happened in 1887 in Kimberley, when the title of clerk of works, Thomas Callen, was changed to that of borough engineer and his salary was increased accordingly.[4] The same happened in 1893 in Pietermaritzburg when the designation of Edward Harrison, clerk of public works, was changed to that of borough engineer and overseer of waterworks.[5] John Laughton was appointed as clerk of works on King Williams Town in 1893. After three months probation, his salary was increased and he received the title of town engineer.[6] In 1900, in Newcastle the title of borough engineer was accorded to George Jenkins, foreman of works.[7] James Maden was the municipal inspector of Claremont when his title was changed to that of town engineer in 1901.[8] The title of already mentioned W.J. Schooling in Harrismith was changed within one year of his appointment as superintendent of street works to that of town engineer. In Uitenhage, W.J. Mason was appointed as superintendent of works in April 1907, but after seven months the title was changed to that of town engineer.[9]

Figure 34. Ernest Grubb, town engineer of Grahamstown, 1907–1912. (*South African Who's Who*, 1908)

The same happened at the same year in Grahamstown, when Ernest Grubb (See Figure 34) was appointed clerk of works in August; his title, however, was changed already in October after only six weeks in office.[10] Lastly in Umtata in 1910, the municipal council allowed resident engineer E.J.D. Brooks to start using the title of town engineer.[11] It has to be mentioned that most of these title changes were correct since the person was an engineer. Exceptions here are Harrison, who was a surveyor, Jenkins, whose

4 WCPA, 3/KIM 1/1/1/1, Town Council meeting, 23.2.1887.
5 Meineke & Summers, 1983, 20-21.
6 WCPA, 3/KWT 1/1/1/14, Borough Council meeting, 29.8.1893.
7 Baylis, vol 3, 1951, 5.
8 *South African Who's Who*, 1908, 259.
9 WCPA, 3/UIT 1/1/1/29, Town Council meeting, 26.11.1907.
10 WCPA, 3/AY 1/1/1/15, Town Council meeting, 9.10.1907.
11 WCPA, 3/UTA 1/1/1/7, Municipal Council meeting, 20.4.1910.

qualifications are not known but apparently was not a qualified engineer, and Maden, who had learned the trade by himself.

There are six cases where the town council decided to offer the position to an engineer already working either in the municipality or for the municipality. In Port Elizabeth, the position was offered to Canadian-born Robert Archibald in 1857 and in Somerset East in 1905 to a local engineer A.C.V. Baines.[12] In Uitenhage, W.F. Malloch was a contractor building a reservoir and pipeline from the Springs, when he was appointed superintendent of works in 1899.[13] F. Walton Jameson provided a report on augmenting a water supply of Pietermaritzburg in 1901. As a result of this report, he was appointed as borough engineer in 1902.[14] In Bloemfontein in 1898, and in Standerton in 1906, the position of town engineer was offered to resident engineers of waterworks, H.F. Peet and J. Edward Fitt, respectively.[15]

There is still one class of appointment without applications: promotion. In four cases, the assistant town engineer was appointed directly as a new town engineer. Two of the clear-cut cases were the appointments of Thomas Cairncross in Cape Town in 1882 and G.S. Burt Andrews in Johannesburg in 1904, where there apparently were not even discussions of any other option.[16] In Germiston in 1907, there were discussions about the necessity of having a town engineer for the municipality. James Bright was acting as town engineer from March 1907 until January 1908, when his appointment as town engineer was finally confirmed.[17] In a way, the strangest case is Cape Town in 1907, when the assistant city engineer, W.J. Jeffries, was appointed as acting city engineer in March.[18] Apparently he was never appointed as city engineer since he was still titled as acting city engineer

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12 WCPA, 3/PEZ 1/1/1/2, Board of Commissioners meeting, 16.12.1857; WCPA, 3/SSE 1/1/1/12, Municipal meeting, 26.7.1905.

13 Herholdt, 1991, 80.

14 NAB, 3/PMB 1/1/7, Town Council special meeting, 20.3.1902.

15 VAB, MBL 1/1/1/9, Town Council meetings, 16.6., 7.7. and 21.7.1898; NASA, TAB, MST, 1/1/2, Municipal Council meeting, 30.3.1906.

16 WCPA, 3/CT 1/1/1/33, Town Council meeting, 23.8.1882; NASA, TAB, MJB 1/1/6, Town Council meeting, 14.12.1904.

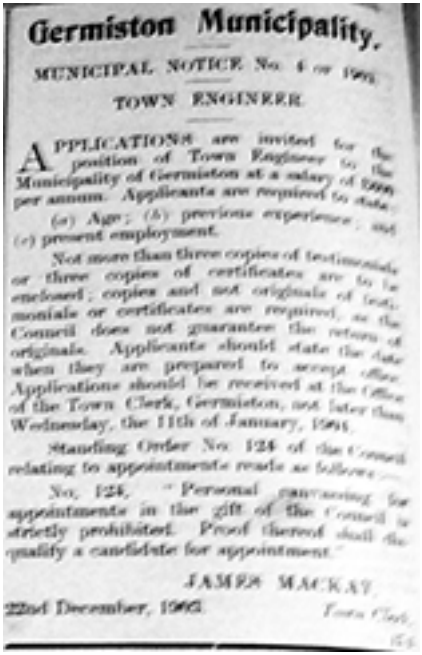
17 NASA, TAB, MGT, 1/1/1/4, Minutes of the Meeting of the Germiston Town Council, 16.8.1907; 'Germiston Municipality'. *The East Rand Express*, 13.7.1907; 'Germiston Town Council'. *The East Rand Express*, 14.9.1907; 'Germiston Town Council'. *The East Rand Express*, 18.1.1908.

18 Cape Town, Annual Report of the City Engineer and Surveyor, in Mayor's Minute, 1907, i.

when he retired in 1914.[19] So far only explanation I have come up for this is the debate about a unified municipality for the Cape Peninsula area. It might be that the council did not want to make a permanent appointment under uncertain conditions.

Advertising

When the position was advertised, in some cases the advertisement was put only in local newspaper; in most cases, however, the position was advertised in newspapers in all the bigger cities of South Africa. (See Figures 35 and 36.) Until the 1890's, Cape Town advertised only in South African newspapers and from



Germiston Municipality.

MUNICIPAL NOTICE No. 4 of 1903.

TOWN ENGINEER.

APPLICATIONS are invited for the position of Town Engineer to the Municipality of Germiston at a salary of £600 per annum. Applicants are required to state (a) Age; (b) previous experience; and (c) present employment.

Not more than three copies of testimonials or three copies of certificates are to be enclosed; copies and not originals of testimonials or certificates are required, as the Council does not guarantee the return of originals. Applicants should state the date when they are prepared to accept office. Applications should be received at the Office of the Town Clerk, Germiston, not later than Wednesday, the 11th of January, 1904.

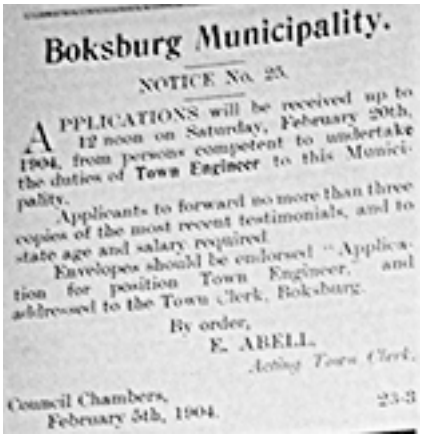
Standing Order No. 124 of the Council relating to appointments reads as follows:—

No. 124. "Personal canvassing for appointments in the gift of the Council is strictly prohibited. Proof thereof shall disqualify a candidate for appointment."

JAMES MACKAY,

22nd December, 1903. Town Clerk.

Figure 35. Advertisement for the position of town engineer of Germiston in *the East Rand Express*, December 26 1903.



Boksburg Municipality.

NOTICE No. 25.

APPLICATIONS will be received up to 12 noon on Saturday, February 20th, 1904, from persons competent to undertake the duties of **Town Engineer** to this Municipality.

Applicants to forward no more than three copies of the most recent testimonials, and to state age and salary required.

Envelopes should be endorsed "Application for position Town Engineer," and addressed to the Town Clerk, Boksburg.

By order,

E. ABELL,

Acting Town Clerk.

Council Chambers,
February 5th, 1904. 23-3

Figure 36. Advertisement for the position of town engineer of Boksburg in *the East Rand Express*, February 6 1904.

[19] Cape Town, Mayors Minute, 1914, 126.

1895 onwards in both South African and British newspapers. In a single case, the position of town engineer was advertised only in British newspapers – in Johannesburg in 1902 immediately after the South African War, for political reasons. Johannesburg was the only municipality in the Transvaal to advertise in both South Africa and Britain and this happened only in 1889, when they appointed their first town engineer. All the others advertised only in local papers or, in the case of Pretoria in 1902, not at all, again for political reasons.[20]

Of the seven appointments in the Free State, two were made upon recommendation and in one case the candidate was invited for the position. In one case, the process is unknown. In three cases, the position was advertised in South African papers. The position was never advertised in British newspapers. Of the 14 appointments in Natal, three were made without applications. In only two cases, the position was advertised in Britain; 1889 in Durban and 1898 in Pietermaritzburg. In eight cases, the position of engineer was advertised only in South Africa. Details of the appointment in Newcastle in 1909 are not known.

All-in-all, the norm seemed to have been to put advertisements in the local newspaper and the newspapers of the biggest towns in South Africa. There are unfortunately cases where the exact details are not known, but these are usually smaller municipalities which were highly unlikely to advertise outside South Africa. There are, however, exceptions like Mowbray which advertised the position of town engineer also in London newspapers.[21]

Selecting the final candidates

The usual method of screening the applications was either to appoint a special committee, or delegate it to some standing committee, like the general purposes committee or the public works committee. Cape Town already did it in 1854, even if they had only eight applications.[22] Interestingly enough, Cape Town did not use a committee for the next two appointments in 1855 and 1857; in the latter case probably because there were only three applications.[23] Cape Town

20 Mäki and Haarhoff, 2009.

21 WCPA, 3/MWY 2, Town Council special meeting, 24.7.1901.

22 WCPA, 3/CT 1/1/1/15, Board of Commissioners meeting, 26.4.1854.

23 WCPA, 3/CT 1/1/1/16, Board of Commissioners meeting, 26.12.1855; WCPA, 3/CT 1/1/1/17, Board of Commissioners meeting, 18.11.1857.

refrained from using a committee in two other cases, even when they received a large number of applications; in 1873 there were 50 applications and in 1881 116 applications. In both cases, the matter went directly to a ballot after the secretary had read out the names of the applicants.[24]

Of the cases were there was no committee, in four the town council itself decided which of the applicants went to a ballot. This happened in 1893 in Johannesburg, in 1897 and 1900 in East London, and in 1898 in Woodstock.[25] In two other cases, the matter went directly to vote because of the number of the applicants; in Graaff-Reinet there were six[26] applicants in 1881 and in Johannesburg 15 in 1892.[27] In two cases where there were not too many applications, in Mowbray in 1901 and in Umtata in 1909, the choice was unanimous.[28] Two other cases still need to be mentioned. Appointments in Johannesburg and Pretoria in 1902 were special cases because of the political situation after the Anglo-Boer War. Both appointments were made by the colonial government of the Transvaal. Moreover, the position in Pretoria was not even advertised in any newspapers. The position in Johannesburg, however, was advertised in British papers and the final selection of the candidate was done by the selection committee in London.

It is necessary to mention here that in five cases the appointees were selected from applications received during a previous call for applications. In Cape Town in 1873, the first person selected declined the appointment.[29] In Pietersburg in 1904, the general purposes committee went through the same applications three times. The first appointee resigned after one month, the next one was dismissed after one month and only the third time they managed to appoint an engineer who stayed a bit longer.[30] In East London in September 1906, the

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24 WCPA, 3/CT 1/1/1/24, Town Council meeting, 4.7.1873; WCPA, 3/CT 1/1/1/31, Town Council meeting, 2.2.1881.

25 NASA, TAB, SS 3727, R5089/93, Extract uit de Notulen van eene speciale byeenkomst van Gesondheids Comité, 24.4.1893; WCPA, 3/ELN 1/1/1/11, Municipal Council special meeting, 5.7.1897; WCPA, 3/ELN 1/1/1/12, Municipal Council special meeting, 21.12.1900; WCPA, 3/WSK 7, Town Council meeting, 19.12.1898.

26 Actually only four applications were considered since one was withdrawn and one was rejected because applicant was offering to do the job with lower salary than what was advertised. *The Graaff-Reinet Herald*, 30.3.1881.

27 WCPA, 3/GR 1/1/1/16, Town Council minutes, 25.3.1881; *The Star*, 2.12.1892.

28 WCPA, 3/MWY 2, Town Council special meeting, 24.7.1901; WCPA, 3/UTA 1/1/1/7, Municipal Council special meeting, 14.9.1909.

29 WCPA, 3/CT 1/1/1/24, Town Council meetings, 4.7., 15.8. and 29.8.1873.

30 NASA, TAB, MPB 1/2/1, Minutes of the General Purposes Committee, 12.7., 30.8., 10.9., 3.11., 8.11. and 13.12.1904.

appointment was deferred for seven months until April 1907, when the public works committee started to examine the old applications and it still took them two months to submit a short list of six engineers to the town council.[31]

Appointments in the town councils

The final appointments were done in the town council meetings. In most cases, there were one to four rounds of voting involved. There are also a fair number of unanimous decisions. There are, however, seven cases that include proceedings out of the norm. In Cape Town in June 1901, the town council, after considering the report of their London agents decided to issue further advertisements with better benefits to lure more applications.[32] In Cape Town in 1875 and in East London in 1902 and 1906, it was decided that the appointment would stand.[33]

In Durban, after J.F.E. Barnes resigned in 1887, the open position was advertised and the council received at least 13 applications. One of the applicants was a former town surveyor and mayor W.E. Robarts (See Figure 37), who presented four possible alternatives how the council could use his services.[34] The first option was that he could take over the whole department at £800 a year, with the staff becoming his paid employees. As a second option he could be appointed as borough

W. E. ROBARTS, J.P., 1886-7.

Figure 37. W.E. Robarts, consulting borough engineer of Durban, 1887–1888. (Henderson, 1904)

[31] WCPA, 3/ELN 1/1/1/16, Municipal Council special meeting, 28.9.1906; WCPA, 3/ELN 1/1/1/17, Public Works Committee meetings, 10.4. and 24.4.1907, Municipal Council meetings, 15.5., 12.6. and 26.6.1907.

[32] Cape Town, Mayor's Minute, 1901, 181-182; WCPA, 3/CT 1/1/1/54, Town Council meeting, 14.11.1901.

[33] WCPA, 3/CT 1/1/1/27, Town Council meeting, 8.9.1875; WCPA, 3/ELN 1/1/1/13, Municipal Council special meeting, 20.8.1902; WCPA, 3/ELN 1/1/1/16, Municipal Council special meeting, 28.9.1906.

[34] TBD, 3/DBN 2/1/1/57, 18063 W.E. Robarts to the Mayor and Town Council of Durban, 22.11.1887.

engineer with a salary of £400 a year. The third option was that he could be hired as consulting engineer with a salary of £200 a year. Fourthly, he offered a possibility to work per commission. Since the third option was the cheapest one of the all applications, the standing committee recommended that Robarts should be appointed according to the terms he had proposed.[35] This recommendation was accepted by the town council with the mayor casting the decisive vote.[36]

Two oddest cases are Port Elizabeth in 1899 and King Williams Town in 1900. In both cases, the appointment went to a person who was not among the applicants. In Port Elizabeth, they received four applications for the position of town engineer. In the town council meeting, it was, however, moved that G.H. Small from Penzance should receive the appointment which was accepted.[37] The whole matter seems very strange since all the four applicants were in South Africa at the moment and Small was in England. Moreover, among the four were J.P. McMillan who was soon appointed town engineer of Graaff-Reinet and R.H. Heward who became town engineer of Green Point and Sea Point. In King Williams Town, they received 15 applications and even selected a short list of three in April 1900. It was, however, decided to make further enquiries before final selection. In May, the mayor received a communication from E.J.D. Brooks of Cape Town, who offered his services as borough engineer. This offer was accepted by the town council.[38]

Unanimous decisions

In 21 cases, the decision of whom to appoint was unanimous. In four of these, the town council compared the merits of the applicants. The common nominator in these cases was the relatively small number of applications; in 1892 in Johannesburg 15, in 1901 in Mowbray 20, in 1902 in Wynberg 15 and in 1909 in Umtata 4.[39] There is also the case of Uitenhage in 1905, where there apparently

35 TBD, 3/DBN 5/2/6/1/6, Standing Committee meeting, 6.12.1887.
36 TBD, 3/DBN 1/1/1/1/19, Town Council meeting, 7.12.1887.
37 WCPA, 3/PEZ 1/1/1/18, Town Council meeting, 9.11.1898.
38 WCPA, 3/KWT 1/1/1/14, Town Council meetings, 18.4. and 30.5.1900.
39 *The Star*, 2.12.1892; WCPA, 3/MWY 2, Town Council special meeting, 24.7.1901; WCPA, 3/WBG 5, Town Council special meeting, 7.10.1902; WCPA, 3/UTA 1/1/1/7, Municipal Council special meeting, 14.9.1909.

was no committee stage; at least it is not mentioned in the town council minutes. They had 63 applications which were discussed by the town council, who deemed 23 of them suitable. Of these a reduced list of nine was framed. The process was repeated and the final list consisted of three names. All this happened during a single special meeting on 23 October.[40] In the regular meeting a week later, M.J. McMaking was appointed unanimously.[41]

In all the other 16 cases, there was a committee stage. In 1854 in Cape Town, the committee examined the eight applications and wrote a report of them without any recommendations, Woodford Pilkington was then appointed unanimously in the town council.[42] In Grahamstown in 1879, there were 15 applications and in Cape Town in 1901 74. In both cases, the committee made a recommendation of only one person which was then accepted by the town council.[43] In Durban in 1881 and in 1889, the committee recommended only one candidate, the difference being that in 1881 the committee was apparently unanimous in their recommendation, whereas in 1889 there was a vote between three best candidates.[44] Also in Heidelberg in 1904, the committee recommended only the person who then was appointed; it is, however, not known how many applications there were.[45]

In all the other cases where the final decision was unanimous, the committee recommended from two to six candidates to the town council. Two of them warrant mentioning. In Pietermaritzburg in 1898, they received altogether 50 applications, 30 from Britain and 20 locally. The council's London agents then selected two from the British applications and the town council two from local applicants for final selection.[46] There are only two other cases known where the applications have not been considered as one group, those of Cape Town in 1898

40 WCPA, 3/UIT 1/1/1/28, Town Council special meeting, 23.10.1905.
41 WCPA, 3/UIT 1/1/1/28, Town Council meeting, 31.10.1905.
42 WCPA, 3/CT 1/1/1/15, Board of Commissioners meeting, 26.4.1854.
43 WCPA, 3/AY 1/1/1/10, Town Council meeting, 19.11.1879; WCPA, 3/CT 1/1/1/54, Town Council special meeting, 28.10.1901.
44 TBD, 3/DBN 5/2/6/1/3, Standing Committee meeting, 9.12.1881; TBD, 3/DBN 5/2/6/1/7, Standing Committee meeting, 2.–3.4.1889.
45 NASA, TAB, MHB 1/1/1/2, Town Council meeting, 1.2.1904.
46 NAB, 3/PMB 1/1/7, Town Council special meeting, 9.9.1898.

and 1901.[47] Another special case was Benoni in 1909, where the three selected applicants were interviewed before final recommendation.[48]

Balloting

Besides the 19 unanimous cases mentioned above, there are 36 cases where there was voting and 13 cases where it is not known how the final decision was reached. Of the cases involving voting, in 23 only one round of voting was needed, in six there were two rounds, in two three rounds, and in one four rounds. In four other cases, the process was more involved. In East London in 1897, the appointment was first discussed on 29 June. In this meeting, there were three ballots and the two applicants getting the most votes in the third round were asked to meet the council. The two applicants were interviewed on 5 July, followed by voting.[49] In Uitenhage in 1907, the town council received 22 applications and after a ballot, the town council decided to interview four of them. After interviews, the special committee recommended unanimously the appointment of Walter J. Mason.[50] In Pietermaritzburg in 1909, nine of the applicants got support of the councillors. There were two rounds of balloting and James Just Niven received the highest number of votes in the second round. After invited to an interview by the council, Niven was duly appointed a week after the interview.[51]

The most complicated process happened in Pretoria in 1908-1909. On 17 December, the general purposes committee submitted three names to the town council to consider for appointment as town engineer. The matter was discussed during an extraordinary meeting five days later. It was decided (nine votes against eight) to postpone the consideration of the matter to the following year. The next discussion was in a meeting on 14 January resulting in a final vote in favour of F.W. Jameson (eight votes against the seven votes for H.C. Kirby). Although

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47 In 1898, the London Agents recommended one candidate and two were selected locally; in 1901, the eight local applications were considered first and deemed unsuitable, final selection was made from 66 applications received in London.

48 NASA, TAB, MB, 1/1/3, Minutes of the Benoni Town Council, 18.11.1909; 'Benoni Town Council'. *The East Rand Express*, 20.11.1909.

49 WCPA, 3/ELN 1/1/1/11, Municipal Council special meetings, 29.6. and 5.7.1897.

50 WCPA, 3/UIT 1/1/1/28, Town Council meetings, 16.4, 19.4. and 25.4.1907, Special Committee meeting, 23.4.1907.

51 NAB, 3/PMB 1/1/8, Town Council special meetings, 8.6. and 16.6.1909.

Jameson was the preferred candidate, the next vote was whether he should be appointed as town engineer. The resulting vote was a tie and the mayor gave his casting vote against the appointment. The matter was thereupon referred back to the general purposes committee, who submitted the same three names as before. The matter rested now until March, when another special council meeting was called. This time, Jameson got enough support to secure his appointment by 11 votes against 5 for Kirby.[52]

In most of the rest thirteen cases there are unknown parts in the process. For instance, in only two cases, Rondebosch in 1903 and Kroonstad in 1904, the total number of applications is known.[53] In two other cases, we have some information about the number of applicants. In Port Elizabeth in 1881, it is known that they received 94 applications from Britain, but the number of local applications is unknown.[54] Incidentally, this is the first confirmed case of a South African town engineer's position that was advertised in Britain. In Cape Town in 1902, although it is known that there were ten local applications and that the five best from Britain were considered, the total number is unknown.[55] In the other nine cases, there is no information about the number of applications.

Summary

In most cases, when a municipality needed a new municipal engineer, the position was advertised in local newspapers and newspapers of bigger cities in South Africa. In some cases, mostly in bigger cities, the position was advertised also in British newspapers. There were, however, some appointments that were not advertised in four categories. In three cases, appointments were made either by recommendation or directly. In some cases, the position was directly offered to a person already working for the municipality. In four cases, the assistant engineer was promoted. There were also cases where the designation of the person was changed from some other to that of town engineer.

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52 NASA, TAB, MPA 1/1/1/15, Town Council meetings, 17.12. and 22.12.1908, 14.1. and 4.3.1909.

53 WCPA, 3/RBH 6, Town Council meeting, 1.10.1903; Men of the Times, 1906, 528.

54 Herholdt, 1987, 3.

55 WCPA, 3/CT 1/1/1/54, Town Council meeting, 27.1.1902.

In most of the cases, the applications were sent to either a special committee appointed for this purpose or to some existing committee to shift through the applications to make a recommendation to the town council. In some cases, however, the whole town council went through the applications. When the matter reached the town council, in 19 cases the council made a unanimous decision who to appoint. In 36 cases, there were one to four rounds of voting involved. In some cases, interviews of the main candidates were also included in the process.

6 Salaries of the engineers

In this chapter, the focus is on the salaries of the engineers and the development of the salaries. First some specific municipalities and the development of the salaries in them during the examination period will be looked at. After that, there will be some comparisons of salaries in the different municipalities around the same time period. The reservation, however, has to be made that the actual salary is known only from a minority of the engineers. In the figures 42 and 43 at the end of the chapter are presented all the known starting salaries.[1]

Individual municipalities

First we should look at Cape Town, which is the only municipality having a town engineer during the whole time period. Although the salaries of only five of the twelve engineers are known, they provide a good general picture of how the salaries developed. Woodford Pilkington, the first town engineer, got £250 a year.[2] Peter Penketh, appointed three years later in 1857, got £300 a year plus £30 for a horse; this was raised to £500 a few years later.[3] T.W. Cairncross appointed in 1882 got £400 a year.[4] In 1895, the city council decided to have a top engineer from Britain which was reflected in the magnitude of the salary offered; W.T. Olive, the new engineer, had a salary of £800 a year.[5] It is safe to assume that R.O. Wynne-Roberts appointed after him had at least the same salary. John Cook

1 For comparing the relative values of the salaries, I have used Measuring Worth (http://measuringworth.com).
2 WCPA, 3/CT 1/1/1/15, Board of Commissioners meeting, 26.4.1854.
3 Radford, 1979, 77.
4 WCPA, 3/CT 1/1/1/33, Town Council meeting, 23.8.1882.
5 Cape Town, Mayor's Minute, 1895, 33.

after him in 1903 had a salary of £1500 for the first year, £1750 for the second year and £2000 for the third year.[6] When you use index correction you can see that £250 in 1852 corresponds with £515 in 1902, so in Cape Town the salary of the town engineer tripled in 50 years. Interestingly enough Pilkington's salary was relatively about the same than what Cairncross got when he started in 1882.

From East London, the salaries of four engineers are available. G.F. Newsam, town engineer in 1881–1885, had a relatively high salary of £500 a year; it was higher than what town engineer in Cape Town got at the same time.[7] John Powell, when appointed for the first time in 1897, had a salary of £400 a year.[8] William Farrant, when he was acting town engineer in 1902–1903, had a same salary.[9] In 1902, East London followed the Cape Town example to recruit a senior engineer from Britain. The vacant position was first advertised with a salary of £600 a year and again in 1903 after Farrant resigned, at £800 a year.[10] After correction for inflation, Newsam's salary was amazingly high when compared with the salaries of Powell and Farrant.

The third municipality in the Cape Colony worth mentioning here is Kalk Bay-Muizenberg. They appointed their first town engineer, Thomas Bennett, in 1902 with the salary of £500 a year.[11] This was raised two years later to £750.[12] When the next town engineer, D.P. Howells, was appointed in 1908, his salary was only £300 a year.[13] In my opinion, there are two explanations for this development. Firstly Bennett was experienced engineer, 51 years old, when he was appointed whereas Howells was at the beginning of his career, only 28. The other, and probably more important reason, was the economical depression; the municipality most likely could not afford to pay more. There was also a possibility of municipal unification which probably had an impact on decision making process.

Besides Cape Town, Pietermaritzburg is the municipality I have the best information about the salaries of the engineers. The first engineer Hughbert

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6 Cape Town, Mayor's Minute, 1901, 182.
7 Tankard, 1991, 81.
8 WCPA, 3/ELN 1/1/1/10, Municipal Council meeting, 12.5.1897.
9 WCPA, 3/ELN 1/1/1/13, Municipal Council meeting, 20.8.1902.
10 WCPA, 3/ELN 1/1/1/13, Municipal Council meeting, 2.6.1902; WCPA, 3/ELN 1/1/1/14, Municipal Council meeting, 13.5.1903.
11 WCPA, 3/KBY 2, Special Council meeting, 4.2.1902.
12 WCPA, 3/KBY 2, Special Council meeting, 3.10.1904.
13 WCPA, 3/KBY 3, Town Council meeting, 6.2.1908.

Baker did not have a salary, he was paid by commission, and the salary of the second engineer George Pigot Moodie is not known.[14] The salary of the third engineer C.H. Richards was £500 a year in 1881.[15] The salary of Edward Harrison was lower, £330 a year, but this was because he was a surveyor not an engineer.[16] A.H. Waller's salary was £450 a year when he started in 1896; this was raised to £600 in the following year.[17] After Waller, we can see again the effect on the salary when you want to get an experienced man from Britain; the salary of G.B. Laffan was £800 a year in 1898.[18] F.W. Jameson got the same salary in 1902.[19] When J.J. Niven was appointed in 1909 his salary was only £500 a year.[20] This reduction is explained by the economical depression. When you use an index correction, you can see that only Harrison's salary was lower than what Niven got in 1909. So the effect of the depression of the late 1900s on the borough engineer's salary in Pietermaritzburg was really dramatic. The highest salary in real terms was the one paid to Laffan in 1898. And like the salaries of the early town engineers in Cape Town and East London, the salary of Richards was relatively high compared to the salaries of his successors.

The last municipality to be looked at is Johannesburg. The first point that should be mentioned is that the salary of the town engineer of Johannesburg was the highest one during the whole examination period. The salary of the first town engineer, W.H. Miles, was £1000 a year in 1889.[21] The salary of his successor G.R. Grey is not known but it is safe to assume that it was the same since the salary of Charles Aburrow, the third engineer, was also £1000 a year.[22] After the Anglo-Boer War, the government of the Transvaal wanted to get a first class engineer for Johannesburg, consequently they offered a whopping £3000 a year when they advertised the position in 1902.[23] This, however, did not happen again. When D.C. Leitch resigned and his deputy G.S. Burt Andrews was appointed his

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14 Meineke & Summers, 1983, 15.
15 Meineke & Summers, 1983, 20.
16 Meineke & Summers, 1983, 20–21.
17 Meineke & Summers, 1983, 21.
18 NAB, 3/PMB 1/1/7, Town Council special meeting, 9.9.1898.
19 NAB, 3/PMB 1/1/7, Town Council special meeting, 20.3.1902.
20 NAB, 3/PMB 1/1/8, Town Council special meeting, 16.6.1909.
21 *The Star*, 29.10.1889.
22 NASA, TAB, SS 3727, R5089/93, Extract uit de Notulen van byeenkomst van het Gesondheids Comité, 17.3.1893; 'The Town Engineer', *The Star*, 17.3.1893.
23 NASA, TAB, CS 53, 7093/01, Telegram from administrator to secretary of state, 4.12.1901.

successor, his salary was only £1800 a year.[24] Andrews' starting salary, however, was still high and was approximately the same John Fletcher got in 1918 in Durban at the time of his retirement after 29 years service.

Comparisons between municipalities

When doing comparisons between municipalities, the first time period we can do this is 1879–1882 when we know starting salaries in six different municipalities, four in the Cape Colony and two in Natal. Both Pietermaritzburg and Durban appointed their borough engineers in 1882 with the same salary of £500 a year.[25] These were also the highest salaries. Of the four municipalities in the Cape Colony, Humphrey Henchman's salary in Graaff-Reinet was £400 a year plus £50 for a horse.[26] T.W. Cairncross in Cape Town and A.H. Reid in Grahamstown also got £400 a year.[27] The lowest salary was £350 for G.F. Newsam in East London in 1881.[28] Looking at these numbers, it makes you wonder why the salary of the city engineer of Cape Town was at the same level as the others since it was the biggest town in South Africa.

Figure 38. John Fletcher, borough engineer of Durban, 1889–1918. (Henderson, 1904)

It is interesting to notice that in 1889 when Johannesburg appointed its first town engineer, W.H. Miles, his salary was £1000 a year.[29] In the same year, John Fletcher (See Figure 38) was appointed borough engineer of Durban with a salary of £500 a year.[30] So while Johannesburg was not yet even an official municipality, the paying willingness of its health board already at this stage exceeded considerably what the town

24 NASA, TAB, MJB 1/1/6, Town Council meeting, 14.12.1904.
25 Meineke & Summers, 1983, 20; Lynsky, 1982, 16.
26 *The Graaff-Reinet Herald*, 30.3.1881.
27 WCPA, 3/AY 1/1/1/10, Town Council meeting, 19.11.1879.
28 Tankard, 1991, 81.
29 *The Star*, 29.10. 1889.
30 TBD, 3/DBN 9/4, Durban Corporation notice, 10.12.1888.

council of Durban was willing to pay. There was not that big difference between the working experiences of the two engineers. The main difference was that, although Miles was in England when appointed, he had earlier experience from South Africa.

In 1893, we have three appointments that we know the salary. The appointment in Johannesburg is on its own level; Charles Aburrow got £1000 a year.[31] The other two appointments, Pietermaritzburg and King Williams Town are more of the same level. Telling fact here is that Edward Harrison in Pietermaritzburg, although not trained as engineer, got £330 a year while John Laughton, who was an engineer, got £300 in King Williams Town.[32]

In the late 1890s, the salaries in Cape Town and Pietermaritzburg started to get closer to the salary in Johannesburg. In 1895, W.T. Olive's salary in Cape Town was £800 a year and in 1898 G.B. Laffan got the same amount in Pietermaritzburg.[33] The other known salaries where of the same but lower level; G.H. Small had £550 in Port Elizabeth in 1899, H.F. Peet had £500 in Bloemfontein in 1898, A.H. Waller had £450 in Pietermaritzburg in 1895 and John Powell (See Figure 39) had £400 in East London in 1897.[34] In these, the only one which needs some attention is the considerable raise in Pietermaritzburg. This is probably connected more to its position as colonial capital than anything else.

In 1900–1901, we have three appointments where the salaries are known. Of these, the highest salary was paid to F.B. Drake in Mowbray in 1901, £400 a year.[35] In the previous year, Ernest Attridge was appointed in Simon's Town with the salary of £300 a year.[36] In King Williams Town, E.J.D. Brooks was also appointed in 1900 but his salary was a bit more complicated. During the first six months, he got £25 per month and for the next six months £30 per month.[37] So this means that during the first twelve months he got £330. Unfortunately it

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31 NASA, TAB, SS 3727, R5089/93, Extract uit de Notulen van byeenkomst van het Gesondheids Comité, 17.3.1893; 'The Town Engineer', *The Star*, 17.3.1893.

32 Meineke & Summers, 1983, 20–21; WCPA, 3/KWT 1/1/1/13, Borough Council meeting, 29.8.1893.

33 Cape Town, Mayor's Minute, 1895, 33; NAB, 3/PMB 1/1/7, Town Council special meeting, 9.9.1898.

34 WCPA, 3/PEZ 1/1/1/18, Town Council minutes, 9.11.1898; VAB, MBL 1/1/1/9, Town Council meeting, 21.7.1898; Meineke & Summers, 1983, 21; WCPA, 3/ELN 1/1/1/10, Municipal Council meeting, 12.5.1897.

35 WCPA, 3/MWY 2, Town Council special meeting, 24.7.1901.

36 WCPA, 3/SMT 1/1/1/6, Town Council meetings, 31.8. and 11.10.1900.

37 WCPA, 3/KWT 1/1/1/14, Town Council meeting, 30.5.1900.

Figure 39. Town council and officials of East London in 1909. Town engineer John Powell second from right in back row. (East London, Mayor's Minute, 1909)

Figure 40. D.C. Leitch, town engineer of Johannesburg, 1902–1904. (*South African Who's Who*, 1908)

is not known what his salary was during the last two years of his tenure.

In 1902, we have six appointments that could be divided in three categories. In the first category, we have Johannesburg with D.C. Leitch's (See Figure 40) salary of £3000 a year.[38] In the second category, we had Pretoria, Cape Town and Pietermaritzburg. In Cape Town, the salary of the new town engineer John Cook was £1500 a year, in Pretoria H.D. Badcock got £1000 and in Pietermaritzburg F.W. Jameson got £800.[39] In the last category, we have Thomas Bennett in Kalk Bay-Muizenberg with £500 a year and the acting town engineer of East London, William

[38] NASA, TAB, CS 53, 7093/01, Telegram from administrator to secretary of state, 4.12.1901.

[39] Cape Town, Mayor's Minute, 1901, 182; NASA, TAB, CS, 73, 2196/02, Acting secretary to the Transvaal administration to the chairman, Municipal Council Pretoria, 4.4.1902; NAB, 3/PMB 1/1/7, Town Council special meeting, 20.3.1902.

Farrant, with a salary of £400.[40] Here we can see a clear pattern emerging with higher salaries at the larger towns.

In 1903, we have three appointments. In East London, Walter Bond had a salary of £800 a year.[41] In King Williams Town, James Maden's salary was £350 a year.[42] And lastly we have the first town engineer of Pietersburg with a salary of £120 a year, which probably indicates that he was not fully qualified.[43]

The following year, 1904, is the year that new engineers were appointed in many municipalities in Transvaal. In nine appointments in Transvaal the salary is known. The biggest salaries were paid in Germiston and Potchefstroom, £600 a year.[44] In Boksburg, the salary was £540 a year and in Krugersdorp £500.[45] In Pietersburg, R.W.B. Somerville had a salary of £120 a year.[46] This is again a clear indication that he was not a qualified engineer, especially since the next two town engineers, W.N. Ashplant and John Anderson, had a salary of c. £400 a year.[47] Considering how the appointments were made it is also safe to assume that the next engineer, James Younger, had the same salary. There are also two other appointments besides Somerville where the low salary makes you wonder of the qualifications of the engineers. In Heidelberg, W.A. ter Horst had a starting salary of £10 a month, which, however, was raised so that in 1907 it was already £360 a year.[48] Harry Hancock got a measly £5 a month in Klerksdorp.[49] Considering that Hancock actually was a qualified engineer, this salary is amazingly low. You could assume that it was raised like Ter Horst's salary; otherwise it is quite unbelievable that Hancock stayed 13 years in Klerksdorp.

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40 WCPA, 3/KBY 2, Special Council meeting, 4.2.1902; WCPA, 3/ELN 1/1/1/13, Municipal Council meeting, 20.8.1902.

41 WCPA, 3/ELN 1/1/1/14, Municipal Council meeting, 13.5.1903.

42 WCPA, 3/KWT 1/1/1/15, Town Council special meeting, 27.8.1903.

43 NASA, TAB, MPB 1/2/1, Minutes of the General Purposes Committee, 13.1.1904.

44 NASA, TAB, MGT 1/1/1/1, Town Council meeting, 22.12.1903; NASA, TAB, MPO 1/1/1/2, Town Council meeting, 5.5.1904.

45 NASA, TAB, MBO 1/1/1/1, Municipal Council meeting, 26.1.1904; NASA, TAB, MKR 1/1/1/1, Town Council, meeting, 12.1.1904.

46 NASA, TAB, MPB 1/2/1, Minutes of the General Purposes Committee, 12.7.1904.

47 NASA, TAB, MPB 1/2/1, Minutes of the General Purposes Committee, 30.8., 27.9. and 8.11.1904.

48 NASA, TAB, MHB 1/1/1/2, Town Council meeting, 1.2.1904; NASA, TAB, MHB 1/1/1/3, Town Council special meeting, 24.8.1907.

49 ASA, TAB, MKD 1/1/1/2, Town Council special Meeting, 23.2.1904.

In Germiston, all three town engineers appointed in 1904–1907 had a salary of £600 a year; the third of them, James Bright, started in 1907.[50] In the same year, Ernest Grubb was first appointed clerk of works in Grahamstown with the salary £300, but the designation was changed two months later to that of town engineer and his salary was raised to £400 a year.[51] The third appointment in this year was John Gillespie's appointment as town engineer of Pietersburg with a salary of c. £270 a year.[52] This is surprisingly low compared to what was paid to Grubb or what had been paid to his predecessors. The probable explanation is the deepening depression.

In 1909, there are five appointments to compare. The highest salary was paid to F.W. Jameson in Pretoria, £1000 a year.[53] This was less than was paid to his predecessor because of the depression. Jameson's successor in Pietermaritzburg, J.J. Niven (See Figure 41), had a salary of £500 a year; this was again lower than what Jameson had got because of the depression.[54] The surprise here is the salary of E.J.D. Brooks in Umtata, also £500 a year.[55] Even if Niven's salary was very low, Brooks' salary is still amazingly high; at this point he was still responsible for only Umtata, not whole Transkei as later, so even this would not explain the salary. In Benoni, W.M. Mason had a salary of £40 a month, or £480 a year.[56] In Parys, William McKenzie's salary was £12 a month, or £144 a year.[57] This might again reflect McKenzie's credentials as an engineer, but more likely it reflects the financial capability of Parys to pay for an engineer.

Figure 41. J.J. Niven, borough and later city engineer of Pietermaritzburg, 1909–1925. (*South African Who's Who*, 1908)

50 NASA, TAB, MGT 1/1/1/4, Town Council meeting, 28.2.1907.
51 WCPA, 3/AY 1/1/1/15, Town Council meetings, 21.8. and 9.10.1907.
52 NASA, TAB, MPB 1/2/4, Minutes of the General Purposes Committee, 21.10.1907
53 NASA, TAB, MPA 1/1/1/15, Town Council meeting 10.9.1908.
54 NAB, 3/PMB 1/1/8, Town Council special meeting, 16.6.1909.
55 WCPA, 3/UTA 1/1/1/7, Municipal Council special meeting, 14.9.1909.
56 NASA, TAB, MB 1/1/3, Minutes of the Benoni Town Council, 22.10.1909; 'Benoni Town Council'. *The East Rand Express*, 23.10.1909.
57 VAB, MPA 1/1/2, Town Council meeting, 11.2.1909.

Summary

When looking at the development of salaries in one municipality during the time period, we can see that the supposition that it gets relatively higher during the time is not necessarily true. In most cases, the engineer in early 20th century had a higher salary than the engineer in the mid- or late 19th century, but in some cases the worth of the money was actually lower. It can also be seen that in some cases the actual salary was also lower but this was mostly because of the economical depression. It can also be seen that if the municipality wanted to get a "first-class" engineer from Britain, the salary had to be much higher than with the previous engineers.

When comparing salaries between the municipalities, you can make the generalisation, that larger municipalities paid larger salaries. In a larger municipality an unqualified engineer could get a bigger salary than what a qualified engineer received in a smaller municipality. Johannesburg was from the beginning in its own category. There are, however, some anomalies. For instance, the salary of Brooks in Umtata is surprisingly high and the salary of Hancock in Klerksdorp amazingly low.

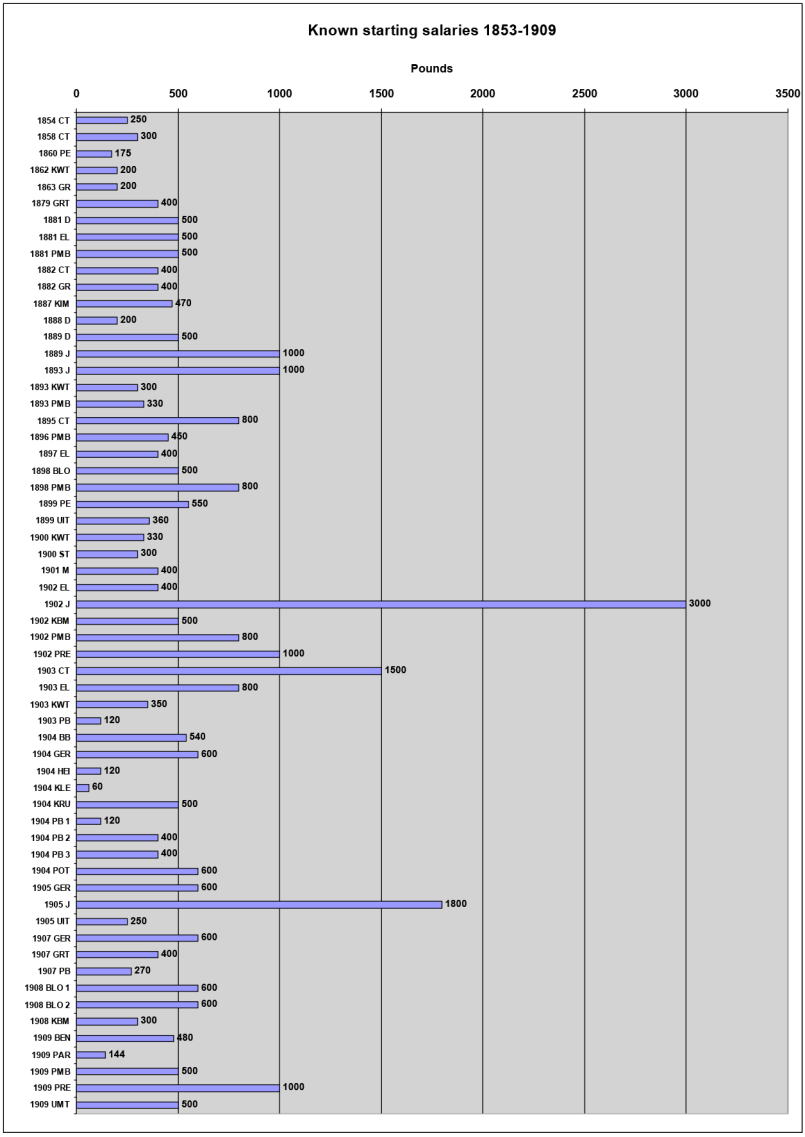

Figure 42. Known starting salaries of town engineers, 1853–1900.

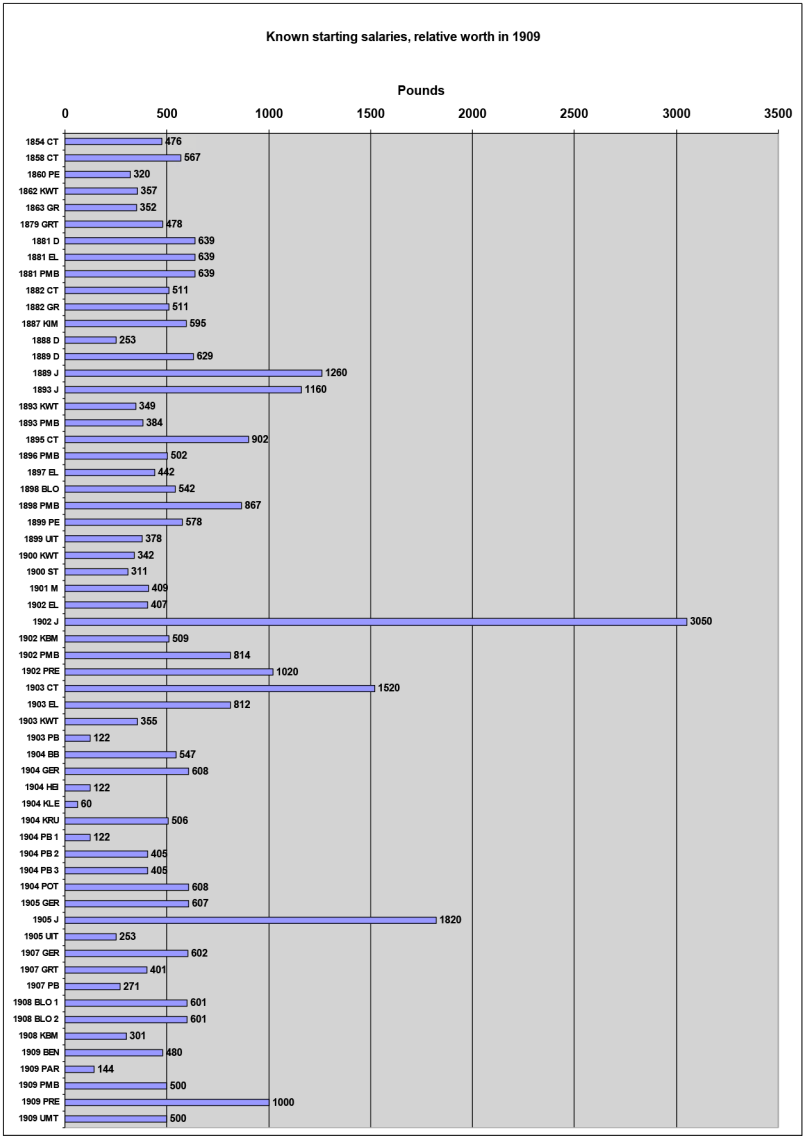

Figure 43. Known starting salaries, relative worth in 1909.

7 Engineers and the town councils

The relations between town engineer and municipal decision makers varied one municipality to the other. In the following section, some examples will be presented where there seemed to be no problems, as well as cases where there were considerable problems. In most cases, you can connect the length of engineer's tenure directly to these relations; when the engineer had problems, the shorter was his tenure.

Good relations

Durban offers the best example of good relations between municipal decision makers and their municipal engineers. During the period under examination, Durban had two borough engineers, John F.E. Barnes in 1882–1887 and John Fletcher in 1889–1918. It seems that neither one of them had any problems getting their proposals approved for building new infrastructure.[1] It is especially remarkable how few problems there were during Fletcher's 29 years long tenure.[2] The other similar example is Bloemfontein, where there were three city engineers: H.F. Peet in 1898–1908, H.A.C. Wallace in 1908, and G.A. Stewart in 1908–1920. Peet resigned only because he did not accept lowering of his salary, Wallace resigned because of health reasons but continued as the assistant city engineer for 15 more years, and Stewart resigned to apply for a government position.

Other engineers who stayed in their position for a long period of time without any major problems were Peter Penketh in Cape Town, A.S. Butterworth in Port Elizabeth, John Powell for two separate periods in East London, T.G. Caink in King Williams Town, Thomas Callen in Kimberley, H.M. Ladell (See Figure

1 Henderson, 1904, passim.
2 Mäki, 2009, 43-59.

44) in Wynberg, J.J. Niven in Pietermaritzburg, G.S. Burt Andrews in Johannesburg and James Bright in Germiston. Special mention here goes to Thomas Callen for his 34 years as town engineer of Kimberley.[3] I'm not trying to equate the length of the engineer's tenure with the good relations here, but in all the cases mentioned above, the lack of confrontation between engineer and the council or its committees is noteworthy.

Figure 44. H.M. Ladell, town engineer of Wynberg, 1902–1928. (*Men of the Times*, 1906, 269)

In this category, two other names have to be mentioned. E.J.D. Brooks and F. Walton Jameson both got flowing praises from the mayor and town councillors when they resigned their position respectively in King Williams Town in 1903 and in Pietermaritzburg in 1910.[4] It is of course normal that you compliment the retiring person but in these both cases compliments went beyond the norm. Brooks, for instance, was lauded as the best engineer the town had ever had.

Problematic relations

Among the engineers who ended up having problems with their relations with the municipal decision makers, you can separate a group where the differences were most probably created by earlier experiences from a totally different working environment and culture. Both J.S. Swallow in Cape Town and John Gillespie in Pietersburg had most of their earlier working experiences as railway engineers either in private companies or in the Cape Colonial Railways. They apparently could not cope with the municipal decision making process and this lead to the resignation in the case of Swallow after one year and in the case of Gillespie

3 "Death of former City Engineer", *Diamond Fields Advertiser*, 10.8.1938

4 WCPA, 3/KWT 1/1/1/15, Town Council special meeting, 25.8.1903; NAB, 3/PMB 1/1/8, Town Council special meeting, 15.4.1909.

after only five months in office.[5] There is no proof but I would speculate that the same thing happened with Woodford Pilkington, the first town engineer of Cape Town. He came from the Colonial Engineer's Department and went back there after 19 months as town engineer of Cape Town.[6]

When looking at the other engineers who had such bad relations that they are worth mentioning, we can see first that there were three cases in Cape Town, namely James Cameron, James Tennant and W.T. Olive. Cameron had a row with the board of commissioners when they decreed that he as town engineer should pay a compensation for a damaged cart from his own pocket.[7] James Tennant was town engineer responsible for building of the Molteno Reservoir. According to John G. Gamble, the colonial hydraulic engineer, he was doing this while also taking care of his regular work and still the town council refused to follow his advice concerning the reservoir.[8] According to Van Heyningen, Tennant was hounded until he resigned.[9] W.T. Olive was appointed city engineer in March 1895 as a sewerage design expert. He resigned in December of the next year and it seems that everyone was relieved. It seems that Olive was very argumentative and a difficult person to work with.

Figure 45. A. H. Waller, borough engineer of Pietermaritzburg, 1896–1898. (*Natal Who's Who*, 1906)

In Pietermaritzburg, both A.H. Waller (See Figure 45) and G.B. Laffan, had difficulties with the decision makers. Waller clashed regularly with the works committee of the council and resigned when the committee insisted on retaining of services of a draughtsman Waller wanted to dismiss.[10] Laffan was engaged after Waller on a three-year contract. His relations, however, with

5 WCPA, 3/CT 1/1/1/32, Town Council meeting, 8.3.1882; Van Heyningen, 1989, 259–260; NASA, TAB, MPB, 1/2/4, Minutes of the General Purposes Committee, 17.3.1908.

6 WCPA, 3/CT 1/1/1/16, Board of Commissioners meeting, 5.12.1855; Chrimes, 2008. 625.

7 WCPA, 3/CT 1/1/1/17, Board of Commissioners meeting, 23.9.1857; Jordaan, 1969, 143–150.

8 Gamble, 1887, 28.

9 Van Heyningen, 1989, 259.

10 NAB, 3/PMB 1/1/7, Town Council special meeting, 21.5.1898.

the works committee were not any better than Waller and his contract was not renewed.[11]

In Graaff-Reinet, all of the three engineers they had before 1910 had bad relations with the councillors. W.L. Mackie, who was also town clerk and treasurer, crossed swords with the chairman of the municipal board about the salary reductions and was dismissed in June 1865.[12] Humphrey Henchman (See Figure 46), while carrying out a waterworks scheme, became a target of abuse, insult and humiliation.[13] He finally resigned in October 1884 after a court case against some of the councillors.[14] J.P. McMillan was appointed in 1900 specifically to complete a new waterworks. There were calls for his dismissal immediately after the appointment. Finally the town council decided to postpone the construction

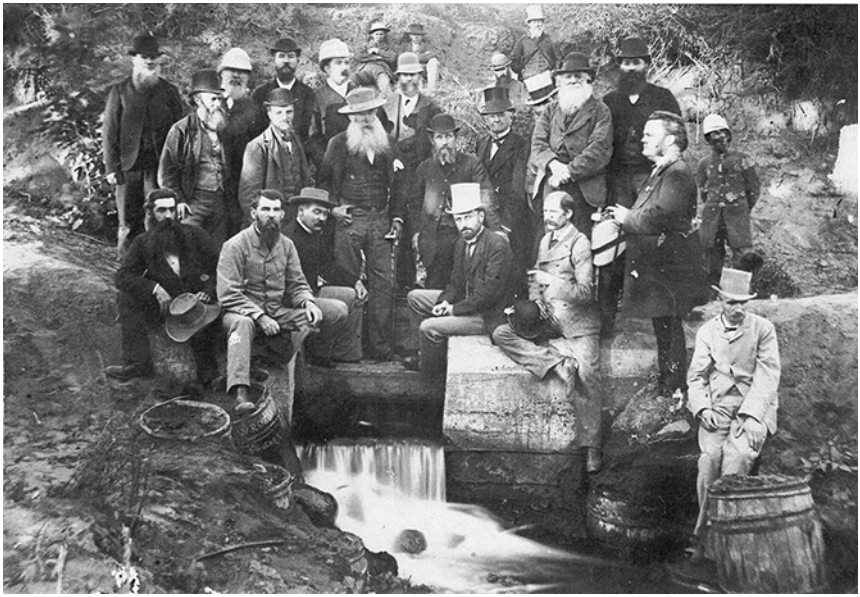

Figure 46. Opening of the water works in Graaff-Reinet in 1883. Town engineer Humphrey Henchman sitting bareheaded in the middle. (William Rice Collection, Graaff-Reinet Museums)

11 NAB, 3/PMB 1/1/7, Town Council meeting, 5.11.1901.

12 Minnaar, 1987a, 14–15.

13 About these see Henning, 1975 and Smith, 1976.

14 Henning, 1975, 87–88; for specific details about throwing of Henchman in the dividing tank of turbine house by some Graaff-Reineters, see 'Charge of assault upon the town engineer', *The Graaff-Reinet Herald*, 23.4.1884.

and in September 1903 McMillan was dismissed since his services were no longer required.[15]

In Grahamstown, the first town engineer Robert Hoggar's qualifications and professionalism came under fire after two years in office. He took longer to fulfil his contracts than promised and wanted more money than agreed. Finally, he resigned claiming that he could not support his family with his remuneration.[16] In Uitenhage, W.F. Malloch was apparently too innovative to the taste of the town council and he had over-ambitious plans. Slowly the opposition to him and his schemes mounted until the council could dismiss him when he did some work on the water supply to the town without permission from the council.[17] In Pretoria, H.D. Badcock probably had problems with the town council from the beginning since he was not a council's favourite for the position.[18] The real problems started after the depression forced Pretoria to adopt retrenchment policy in 1907. The constant demands for staff and salary reductions from the works committee apparently wore Badcock down and he resigned in July 1908.[19]

Summary

While looking at the relationship between the municipal engineer and the town council and its various committees the engineer had to work with, it is difficult to make any generalisations about the good working relations. There are no apparent patterns here.

However, when looking at the engineers having problems, you can point some generalisations. If, for instance, the engineer came from a totally different working culture and environment without any earlier experiences about the municipal decision making process, there was bound to be difficulties. The prime examples are the engineers having a background in railways. They have been used to a greater independence in decision making than they had in municipal

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15 WCPA, PWD 2/10/27, M19/32, McMillan to the Secretary of Public Works, 4.5.1903; WCPA, 3/GR 1/1/1/10, Town Council minutes, 18.9.1903.

16 Gibbens, 1982, 148–150.

17 Herholdt, 1991, 82; Herholdt, 1988a 66; Raymer, 2008, 160.

18 NASA, TAB, CS 83, 3568/02, Johan S. van Reesama, acting town clerk to the acting secretary to the Transvaal administration, 17.4.1902.

19 NASA, TAB, MPA 1/1/1/15, Town Council meeting 27.8.1908.

hierarchy. In many cases, engineer was also too innovative and progressive for conservative and money-conscious councillors. And of course when times were economically difficult, this was usually reflected with the relations between engineer and decision makers.

Three specific municipalities, Cape Town, Pietermaritzburg and Graaff-Reinet, had to be mentioned here. Of the 11 engineers in Cape Town, only Peter Penketh and William Jeffries seemed to have no problems in their relations with the councillors. All the others experienced some kind of friction. In Pietermaritzburg, the six first engineers all either resigned or were dismissed. Graaff-Reinet had only three engineers during the period under examination; they all left the town after difficulties with the town councils. In this case, the problems were probably compounded by the cultural clash between the British engineer and the remote Afrikaner-dominated country town.

8 Reasons for leaving the position

When considering the reasons for engineers leaving their position, you can divide them in two groups; those who left voluntarily and those who left involuntarily. In the first group we have those who resigned for various reasons, and those who retired. The second group includes those who died, those whose contracts ended, those who were dismissed and those who were forced to resign. This analysis excludes those acting engineers whose tenure ended when the position was filled permanently.

Leaving voluntarily

Retirement

Only 11 of the engineers retired directly from their position as town engineer (13 if you include Peter Penketh and John Fletcher who retired for health reasons). Besides Penketh, the only one to do that before 1910 was H.F. Peet in Bloemfontein in 1908. Most of these engineers were appointed soon after the Anglo-Boer War and their tenures continued quite long, in the case of James Bright in Germiston until 1932. Besides Penketh, Fletcher and Peet, the only one appointed in the 19th century was Thomas Callen who served in Kimberley from 1887 until 1920. Other engineers retiring directly from the town engineer's position and appointed before 1910 were J.A.G. Harrisson of Potchefstroom in 1912, W.J. Jeffries of Cape Town in 1914, James Maden of Claremont in 1914, R.H. Heward of Green Point and Sea Point in 1914, Harry Hancock of Klerksdorp in 1917, J.J. Niven of Pietermaritzburg in 1925, and G.S. Burt Andrews (See Figure 47) of Johannesburg in 1927. The unification of the suburban municipalities around

Cape Town in 1914 led directly to the retirement of three town engineers, namely Jeffries, Maden and Heward.

Figure 47. G.S. Burt Andrews, town and later city engineer of Johannesburg, 1905–1927. (*Men of the Times*, 1905, 55)

Moving to other employment

In 23 cases, the town engineers resigned to take on a new job. The first one to do this was Woodford Pilkington, the first town engineer of Cape Town, in 1855. He was apparently not satisfied with his work and returned to work in the colonial engineer's department.[1] There were four other engineers that went to work for the colonial government. M.J. McMaking resigned in 1907 in Uitenhage because "he had got an appointment in the Government service".[2] John Gellatly returned in 1910 from Queenstown to work for the colonial Public Works Department.[3] E.W. Attridge received an appointment from the Irrigation Department and resigned in Simon's Town in 1911.[4] In Natal, John F.E. Barnes, the first borough engineer of Durban, was appointed as the assistant colonial engineer in 1887.[5]

Two of the engineers resigned to work for the Transkeian and Pondoland General Council. James Younger left Pietersburg in 1907 to work as surveyor and then as engineer for the Transkeian General Council.[6] E.J.D. Brooks resigned his position as town engineer of Umtata in 1911 to work as Chief Engineer for the Transkeian General Council after Younger had taken up an appointment as town engineer of Krugersdorp.[7] D.C. Leitch resigned as town engineer of Johannesburg to become the first chief engineer of the Rand Water Board in 1904.[8]

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1 WCPA, 3/CT 1/1/1/16, Board of Commissioners meeting, 5.12.1855.
2 WCPA, 3/UIT 1/1/1/28, board of works meeting, 28.3.1907. It is not known what the appointment was.
3 Institute of Civil Engineers, Candidate Circulars, John Gellatly; Greaves, 1987, 17.
4 WCPA, 3/SMT 1/1/1/11, Town council meeting, 21.12.1911.
5 Henderson, 1904, 138; Obituary, Barnes, 1925, 234.
6 NASA, TAB, MPB 1/2/3, James Younger to the town Clerk, Pietersburg, 10.4.1907.
7 Institute of Civil Engineers, Candidate Circulars, E.J.D. Brooks.
8 NASA, TAB, MJB 1/1/6, Town Council meeting, 14.12.1904

Three of the engineers accepted new positions abroad from South Africa. W.N. Ashplant left Pietersburg in 1904 after only one month in office and went to the Bahamas.[9] James Maden left King Williams Town and went to work in India in 1910.[10] Frank L. Brown resigned his position as town engineer of Kroonstad after getting a position in the Colonial Office, London, in 1911.[11]

There were two cases where the town engineers resigned to work in private business. John Powell did this in East London in 1900 and George Stewart in Bloemfontein in 1920.[12] Stewart actually resigned to apply for a position in the irrigation department in Pretoria but apparently did not get this since he started a consulting firm soon after.

There are seven engineers that resigned to work as town engineer in another municipality. F. Walton Jameson actually did this twice, first in 1909 to go from Pietermaritzburg to Pretoria and then in 1920 to go from Pretoria to Kimberley.[13] The first engineer to do this transfer to another municipality was John Laughton in 1897 when he went from King Williams Town to Port Elizabeth.[14] W.A. Palliser went in 1901 from Queenstown to East London.[15] In 1911, W.J. Mason went from Uitenhage to Bulawayo, Rhodesia, and D.P. Howells from Kalk Bay-Muizenberg to Benoni.[16] In 1921, Alfred Pike went from Volksrust to Umtali, Rhodesia.[17] T.G. Caink in 1926 went from King Williams Town to Estcourt, Natal to be a town clerk and engineer.[18]

Two engineers accepted a lower position in the municipal hierarchy than town engineer. In 1901, the municipality of Cape Town decided to establish a separate

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9 Baker & Neary, 2005, 38–39; http://www.canadiangreatwarproject.com/searches/soldierDetail.asp?ID=44360.

10 Institute of Civil Engineers, Candidate Circulars, James Maden.

11 VAB, MKR 1/1/3, Town Council meeting, 14.9.1911.

12 WCPA, 3/ELN 1/1/1/12, Municipal council meeting, 29.8.1900; VAB, MBL 1/1/1/21, Town council meeting, 9.2.1920.

13 NAB, 3/PMB 1/1/8, Town Council special meeting, 15.4.1909; 'City Engineer', Diamond Fields Advertiser, 21.7.1920.

14 WCPA, 3/KWT 1/1/1/14, Borough Council meeting, 27.7.1897; WCPA 3/PEZ 1/1/1/17, Town Council meeting, 14.7.1897.

15 WCPA, 3/QTN 1/1/1/9, Town Council minutes, 28.12.1900; WCPA, 3/ELN 1/1/1/12, Municipal Council special meeting, 21.12.1900.

16 WCPA, 3/UIT, 1/1/1/31, Board Works meeting, 26.9.1911; Institute of Civil Engineers, Candidate Circulars, Daniel Peter Howells.

17 Institute of Civil Engineers, Candidate Circulars, Alfred Pike.

18 Institute of Civil Engineers, Candidate Circulars, Thomas George Caink.

water engineer's department. R.O. Wynne-Roberts, city engineer at the time, was offered the position as a head of new department because his earlier experience had been connected mostly with waterworks.[19] You can of course speculate how voluntary this transfer was. If Wynne-Roberts had refused the new appointment, would he have been able to continue as city engineer, or would he have been dismissed?[20] The other engineer was John Riley (See Figure 48), who in 1907 went from Germiston to Johannesburg as municipal sewerage engineer.[21]

Figure 48. John Riley, town engineer of Germiston, 1906–1907. (The East Rand Express, March 17 1906)

Health

Four of the engineers resigned their position because of health reasons. The first one to do so, was Peter Penketh in Cape Town in 1872.[22] He had already been ill for some time and on leave at least twice because of his health. He retired and returned to Lancashire after resignation. John Isaac Evans, borough engineer of King Williams Town, resigned in 1899 because he was unable to attend his duties.[23] Evans, however, got better and asked in vain to be re-instated four months later.[24]

The third case was the most interesting of the four. H.A.C. Wallace was appointed city engineer of Bloemfontein in February 1908 after two years as an assistant engineer.[25] Unfortunately, he got pneumonia immediately after starting

19 WCPA, 3/CT 1/1/1/52, Town Council meeting, 11.4.1901.

20 Wynne-Roberts had already in February asked about open positions in the Transvaal or Orange River Colony. NASA, TAB, CS 15, 1771/01, Wynne-Roberts to the Secretary to the Transvaal Administration, Pretoria, 7.5.1901.

21 NASA, TAB, MGT 1/1/1/4, Minutes of the Meeting of the Germiston Town Council, 28.2.1907.

22 WCPA, 3/CT 1/1/1/23, Town Council meeting, 8.2.1872.

23 WCPA, 3/KWT 1/1/1/14, Borough council meeting, 21.12.1899.

24 WCPA, 3/KWT 1/1/1/14, Town council meeting, 18.4.1900.

25 VAB, MBL 3/1/11, Mayor's Minutes 1906, 34; VAB, MBL 1/1/1/14, Town Council meeting, 20.2.1908.

and had to ask sick leave.[26] In July, Wallace asked to be relinquished from the position because the extra duties and responsibilities were too much for his health. He, however, proposed to resume his previous position as an assistant engineer and this was accepted.[27] Wallace continued in a less stressfull position of the assistant city engineer until 1923.

John Fletcher, borough engineer of Durban since 1889, fell from his horse during the repair works following the flood of 1917. He never recovered fully and resigned in April 1918. He was, however, kept employed until October to ensure a pension.[28]

John Hamilton Wicksteed (See Figure 49) could also be placed in this category. He was resident engineer of the Van Staadens Water Supply Scheme in Port Elizabeth and was appointed town engineer in April 1881. He, however, resigned only four months later. Apparently the duties were too much for him as he wrote to his mother, "such duties require a man with more stream-power than I've got".[29] Soon after, Wicksteed committed a suicide.

Figure 49. John Hamilton Wicksteed, town engineer of Port Elizabeth, April–September 1881. (Raymer, 2008)

Problems with the council

There is a group of eleven engineers that could be said to resign because they had problems with the town councillors. In Cape Town, three of the town engineers, James Cameron, James Tennant and J.S. Swallow belong to this group. All of them and their problems had already been referred in Chapter 7. The same is true of Humprey Henchman of Graaff-Reinet, W.F. Malloch of Uitenhage, A.H. Waller of Pietermaritzburg and H.D. Badcock of Pretoria.

There are, however, four other to be mentioned. In King Williams Town, William Dunbar and E.J.D. Brooks resigned after difficulties with the town

[26] VAB, MBL 1/1/1/14, Town Council meeting 5.3.1908.
[27] VAB, MBL 1/1/1/14, Town Council special meeting 23.7.1908.
[28] TBD, 3/DBN 1/1/1/1/37, Town Council meeting, 7.5.1918.
[29] Wicksteed, 1883, 232-233.

council. Dunbar was town clerk and engineer of King Williams Town from 1881. He supervised the building of a new reservoir, but was severely criticised about its appearance. Some years later, he constructed a dam on the Buffalo River, but there were difficulties during the construction. Dunbar received much criticism from both the borough council and the colonial engineer since the final cost was around R10000 instead of the anticipated R3500. Dunbar resigned soon afterwards in 1888.[30] Brooks resigned in 1903 after the town council passed a motion that reflected negatively on Brooks' work. He was asked to reconsider but could not withdraw his resignation.[31]

Pretoria's first town engineer, Ernst Lutz, also resigned after considerable difficulties. The commission of enquiry made accusations that Lutz had awarded tenders without authority. He was eventually exonerated of misconduct and the blame was put on poorly defined jurisdiction and procedures. Nevertheless, Lutz resigned shortly afterwards.[32]

In Boksburg, Harry Good (See Figure 50), town engineer since 1904, experienced problems with the works committee in 1913. The committee decided that the town engineer should also be a fully qualified electrical engineer and recommended that the services of Good be discontinued and that applications be invited for the joint position of town engineer and electrical engineer.[33] During the discussion in the town council meeting, the administrative capabilities and competency of Good were also questioned. After heated debate, the matter was referred to a special commission.[34] After this, the matter took on farcical dimensions. Most of the members of the special commission appointed to consider the matter resigned, the works committee recommended dismissal of the town engineer, and council members were suing each other for slander. Good drew his own conclusions and resigned at the end of April.[35]

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30 Nelson, 1979, 18–19.

31 WCPA, 3/KWT 1/1/1/15, Town Council special meetings 25. and 27.8.1903.

32 Cloete, 1961, 121.

33 'Boksburg Town Council'. *The East Rand Express*, 15.2.1913.

34 'Municipal Re-Organization'. *The East Rand Express*, 22.2.1913.

35 'The Boksburg Municipal Muddle'. *The East Rand Express*, 12.4.1913; A.W. Heinemann, 'The Boksburg Municipal Muddle'. *The East Rand Express*, 19.4.1913; 'Boksburg Municipal Staff'. *The East Rand Express*, 3.5.1913.

Figure 50. Boksbrg town council 1904–1905. Town Engineer Harry Good second from left in back row. (*Boksburg*, 1979)

Other reasons

Another 20 engineers resigned voluntarily. Of these we can establish reasons for seven, but for 13 no clear reasons have been found. Both R.S. Webb and Robert Hoggar resigned because of financial reasons. Webb was the first town clerk of King Williams Town. By 1862 he was burdened with the additional responsibilities of treasurer and borough engineer. In 1865, a separate treasurer was appointed. Webb continued to act as town clerk and engineer until 1869 when he resigned because his salary was cut.[36] Hoggar, the first town engineer of Grahamstown, claimed that his remuneration was not enough to support his family when he resigned in 1861.[37]

[36] Bateman, 1961 9–13.
[37] Gibbens, 1982, 150.

The absent town engineer of Cape Town, James J.A. Flower, resigned in 1873 without even visiting Cape Town during his 11 months tenure. He was working as a representative for a family firm in London and apparently preferred that to going back to Cape Town.[38] W.A. Palliser resigned in 1902 from East London. There was an enquiry about the working of the town engineer's department. During this enquiry, some claims where made against Palliser and he decided to resign before the enquiry was finished.[39] In Krugersdorp, R.A. Webster (See Figure 51) resigned in 1914 after there had been some reorganization of the town engineers department. Two of the engineers, Percy J. Ashenden in Rondebosch and H.M. Ladell in Wynberg, resigned because their municipalities were amalgamated with Cape Town, in 1913 and in 1928 respectively.

Figure 51. R.A. Webster, town engineer of Krugersdorp, 1904–1914. (*South African Who's Who*, 1908)

For T.W. Cairncross and W.T. Olive in Cape Town, W.H. Miles, John Laughton and G.H. Small in Port Elizabeth, William Farrant and Walter Bond in East London, R.W. Menmuir in Woodstock, A.C.V. Baines in Somerset East, George Pigot Moodie in Pietermaritzburg, W.E. Robarts in Durban, John Phillips Mumford in Kroonstad, and William McGeorge Mason in Benoni no clear reasons for their resignation could be established.

Leaving involuntarily

Death

There were three engineers who died in office. Robert Archibald, town engineer of Port Elizabeth, in 1867 and W.R.H. Chipperfield, borough engineer

[38] Obituary, J.J.A. Flower, 1889, 384–385.
[39] WCPA, 3/ELN 1/1/1/13, Municipal council special meetings, 12.5., 27.5. and 30.5.1902.

of Ladysmith, in 1906 both died from injuries after falling off a horse.[40] A.S. Butterworth, town engineer of Port Elizabeth, died in 1917 for a heart failure.[41]

Contract termination

Three engineers had their contracts terminated or ended. All three cases, however, are different. George Bastable Laffan was appointed borough engineer of Pietermaritzburg in 1898 on a three year contract, but he got into some hot water with the town council and his contract was not renewed.[42] August Karlson continued to work as town engineer of Pretoria after the Anglo-Boer War for the time being. In the early 1902, this contract was terminated and he was transferred to a consulting position. R. Kelsky Loveday, the chairman of the town council, said that this was because Karlson was lacking organisational capabilities and could not delegate his responsibilities to his subordinates.[43] Wilhelm Westhofen was appointed as consulting town engineer for Kalk Bay-Muizenberg in October 1906 on a one year contract. Westhofen had just retired from the position of head of the engineering branch of the Public Works Department of the Cape Colony, so it is understandable that the contract was not continued because of his advanced age.[44]

Forced resignation

Seven of the engineers were forced to resign; four of these resignations were because of accusations of corruption. The clearest case of the four is George R. Grey in Johannesburg. In March 1893, it emerged that Grey had turned down cheaper tenders for a particular project and accepted one that would be more profitable to him personally. The health board saw this as a serious case of corruption and Grey was ordered to resign immediately, failing which he would

40 Raymer, 2008, 158; Obituary, Chipperfield, 1906, 364–365.
41 Obituary, Butterworth, 1917, 11.
42 NAB, 3/PMB 1/1/7, Town Council meeting, 5.11.1901.
43 NASA, TAB, PWD, 24, 763/02, R. Kelsky Loveday to Public Works Department, [the first page of letter missing, probably March 1902].
44 WCPA, 3/KBY 3, 13.9.1906 and 29.8.1907.

be dismissed.[45] The case of Thomas Bennett in Kalk Bay-Muizenberg is also quite clear. There is no question that Bennett has been paying a contractor a higher rate than quoted. Bennett said that he was instructed to do this by the mayor. It is not known whether the mayor in question was ever asked about the matter, but the town council held Bennett responsible and demanded his resignation.[46]

City engineer John Cook of Cape Town was accused of preferential treatment of tenders for a contract for street paving. Cook resigned in March 1907 after the report containing these accusations was made public.[47] W.H. Dobson, town engineer of Standerton, was asked to resign together with the town clerk in November 1905 because of the irregularities in financial matters.[48]

W.G. Gray in Woodstock and T.A.J. Forrester in Germiston were forced to resign because of administrative problems. In Woodstock, the council lost their confidence in Gray because of the want of organisation and lack of control in the engineer's department, and he was asked to resign.[49] Forrester and the draughtsman of the engineering department of Germiston resigned in December 1905, after there had been an inquiry about the management of the department. Forrester was blamed for spending too much money and for having administrative problems. Later the East Rand Express countered that he was made "the scapegoat of the economy craze of the Town Council". Apparently Forrester was compelled to construct roads without proper storm water drainage against his own advice.[50]

The last engineer in this category is John Gillespie of Pietersburg. He was forced to resign in March 1908 because of differences with the public health and works committee regarding road construction. Apparently there were some very heated discussions during the committee meetings, because Gillespie later tried

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45 NASA, TAB, SS 3727, R5089/93, Extract uit de Notulen van byeenkomst van het Gesondheids Comité, 10.3.1893 and 17.3.1893; 'The Town Engineer – A Curious Business', *The Star*, 11.3.1893; 'The Town Engineer', *The Star*, 17.3.1893.

46 Walker, 2002, 84–87; Fowler & Coates, 2007, 107–110; Murray, 2000, 45.

47 Cape Town, Annual Report of the City Engineer and Surveyor, in Mayor's Minute 1907, I; Grant, 1991, 151; Shaw, 1975, 135–136.

48 NASA, TAB, MST 1/1/2, Minutes of the Special meeting of the Standerton Municipal Council, 26.11.1905.

49 WCPA, 3/WSK 8, Council special meeting, 27.9.1900.

50 NASA, TAB, MGT 1/1/1/2, Minutes of the Meeting of the Germiston Town Council, 14.12.1905; Ratepayer, 'Municipal Officials'. *The East Rand Express*, 30.12.1905; 'The Recent Disturbance'. *The East Rand Express*, 13.1.1905; Kock, 89; 'The New Town Engineer'. *The East Rand Express*, 17.3.1906.

to keep his job by apologising for his behaviour during these meetings. This, however, was not enough for the members of the committee.[51]

Dismissal

Seventeen of the engineers were outright dismissed. In six of these cases, the dismissal was directly connected to the economical depression. The dismissals of Charles Henry Richards in Pietermaritzburg and George Frederick Newsam in East London, date to the depression in the early 1880s. Richards was appointed in November 1882 but the economical situation forced the town council to dismiss him in September of the next year – only 11 months later. The public works committee even recommended that the whole Borough Engineer's department be abolished, but this was not accepted by the town council.[52] Newsam was originally appointed town clerk and treasurer of East London in 1875. In 1881 the duties of town engineer were added to this appointment, and from 1882 onwards he was town engineer only. The depression forced the town council to appoint a special committee to consider savings in 1884. As a result, the salaries of the town engineer and town clerk were reduced, three officials were retrenched and two offices combined.[53] In April 1885, the town engineer was retrenched because it was impossible to embark upon any major public works.[54]

Four other dismissals are connected to the depression of the first decade of the 20th century. In Heidelberg, the town council discussed the report of a special committee appointed to investigate the efficiency of the municipality in August 1907. The committee recommended merging some offices and the dismissal of some officials.[55] The matter was, however, postponed during the elections in November. In a meeting on 25 November, the decision was made to dismiss the town clerk, town engineer, chief clerk, sanitary inspector, road overseer, water bailiff, and cemetery caretaker from the last day of the year.[56] The vacancies

51 NASA, TAB, MPB 1/2/4, Minutes of the General Purposes Committee, 18.2.1908; NASA, TAB, MPB 1/2/4, Minutes of the General Purposes Committee, 17.3.1908.
52 NAB, 3/PMB 1/1/6, Town Council special meeting, 14.8.1883.
53 Tankard, 1991, 81.
54 WCPA, 3/ELN 1/1/1/6, Municipal council meeting, 29.4.1885.
55 NASA, TAB, MHB 1/1/1/3, Town Council special meeting 24.8.1907.
56 NASA, TAB, MHB 1/1/1/3, Town Council meeting, 25.11.1907.

were filled in December when the previous town engineer, W.A. ter Horst, was appointed as the new town clerk.[57]

In February 1908, the town council of Harrismith considered reports from various committees concerning retrenchment. The report of the public works committee was accepted with one exception; town engineer's salary was to be expunged. In March, the town council adopted the final retrenchment measures, among others giving one month notice to the town engineer and abolishing the whole public works department with the exception of foreman and 10 natives. Town engineer W.J. Schooling fruitlessly protested against this decision. After adopting these measures, the whole council itself resigned.[58] In Standerton, during 1907, there was some reorganisation of the municipal structure. From the middle of 1907, the town clerk presented all the matters presented earlier by the town engineer. J. Edward Fitt, however, stayed on as town engineer until the post was abolished in September 1908.[59] In Mowbray, the council found itself in grave financial difficulties by 1907. This resulted in the reduction of salaries and retrenchment of staff. By December 1909, the financial situation was so bad that the decision was made to abolish the office of the town engineer. The town council regretted the dismissal of F.B. Drake, but the necessity for rigorous cost saving and the indefinite postponement of all constructional projects left them no other alternative.[60]

There are three cases where the dismissals were due to the unsatisfactory performance of the engineer. The first town engineer of Port Elizabeth, a certain Mr Grey, was dismissed in November 1857 because he did not assist the board of commissioners to their satisfaction.[61] W.H. Miles, the first town engineer of Johannesburg, was dismissed in July 1892 for alleged serious neglect of duties. The sanitary board found his services in road building far from satisfactory. He

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57 NASA, TAB, MHB 1/1/1/3, Town Council meeting, 9.12.1907.

58 VAB, MHT 1/1/5, Town Council meetings, 24.2., 23.3. and 6.5.1908.

59 NASA, TAB, MST 1/1/3, Minutes of the Standerton Municipal Council 26.6.1908.

60 Anon., 1985; WCPA, 3/MWY 6, Town Council Special Meeting, 2.12.1909; UNISA, Testimonial from the Mowbray Municipal Council, 31.3.1910, in The Corporation of the City of Cape Town: Appointment of City Engineer. Application of Francis B. Drake, Assoc. M. Inst., C.E., Town Engineer, Municipality of Oudtshoorn: with copies of six testimonials; Parker & Beck, 1910, 7-8.

61 WCPA, 3/PEZ 1/1/1/2, Board of Commissioners meetings, 18.11. and 25.11.1857.

was sued by the board for substantial damages and it was claimed that he had certified poorly-made streets as being up to standard.[62]

Figure 52. Charles Aburrow, town engineer of Johannesburg, 1893–1901. (*Men of the Times*, 1905, 49)

The case of Charles Aburrow (See Figure 52) is more complicated. It was said that his dismissal in 1901 was because he could not work in harmony with the other departments.[63] When reading Lionel Curtis' book *With Milner in South Africa*, there is little doubt who was behind Aburrow's dismissal and with whom Aburrow could not work in harmony. On 11 April 1901, Curtis, who was at the moment town clerk of Johannesburg, wrote that he was "most anxious that the present officials should be superseded by men of unimpeachable honesty and long experience of municipal needs". He singles out the treasurer, town clerk and town engineer.[64] Then on 25 July Curtis wrote: "we have got rid of the men who were at the head of the Treasury, the Engineer's Department, the Fire Brigade, the Health Department … Some of the men were corrupt heirlooms from the old administration, others had been put in by the new as a reward for political service and were utterly inexperienced in their duties".[65] It is clear that Curtis suspected that Aburrow was dishonest and corrupt.[66]

In two cases, the dismissals can be traced to personal reasons. W.L. Mackie was town clerk, treasurer and town engineer of Graaff-Reinet from 1863 to 1865. According to Henning, "the presence of a gay bachelor about town, who spent his money freely on liquor, playing a cricket and paying attention to the eligible ladies, was viewed unsympathetically by the more conservative, impoverished backstreeters".[67] Moreover he could not speak Afrikaans. All this cumulated in

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62 'The Death of Mr W.H. Miles', *The Star*, 4.3.1893; Appelgryn, 1971, 173; Shorten, 1986, 17.

63 NASA, TAB, CS 25, 3286/01, W.A.J. O'Meara to the secretary of the Transvaal administration, 22.7.1901.

64 Curtis, 1951, 214; see also Lavin, 1995, 39; and Paul, 1978.

65 Curtis, 1951, 237.

66 About Aburrow's career after this, see Jackson & Martinson, 1989.

67 Henning, 1975, 73–74.

a salary dispute with the chairman of the municipal board; Mackie refused to accept the reduction of the salaries of municipal officials and was dismissed in June 1865.[68] With John Anderson of Pietersburg the reason of dismissal is very clear, namely "insobriety during business hours and wilful neglect of duty". He was dismissed in December 1904 after only four weeks in office.[69]

In five cases, the dismissal of the town engineers followed when their services were no longer needed. This was the reason advanced by the town council in the cases of Avon Bruce-Brand in Beaufort West, A.H. Reid in Grahamstown, J.P. McMillan in Graaff-Reinet, George Jenkins in Newcastle and Ernest Grubb in Grahamstown. Bruce-Brand was dismissed after the Springfontein Dam (See Figure 53) was finished in 1877.[70] The dismissal of Reid can also be connected to the depression of the 1880s. He was appointed in 1879 primarily to supervise the building of a new town hall. When the town hall was completed, Reid received three month's notice in May 1882.[71] McMillan was appointed in 1901 to complete a new waterworks. This building work never started and in September 1903 McMillan was given three month's notice since his services were no longer required.[72]

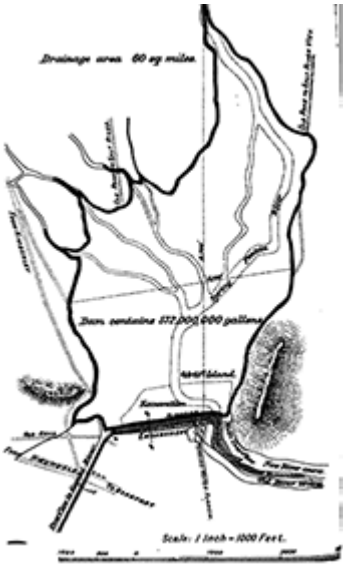

Figure 53. Map of Springfontein Dam in Beaufort West. (Brand, 1882–3, Plate 1)

In Newcastle in June 1904, the town council dismissed town engineer George Jenkins together with town foreman and cemetery caretaker since their services were no longer required.[73] The dismissal of Ernest Grubb in Grahamstown in 1912 is a bit more complex since it is also connected to an investigation at the

68 Minnaar, 1987a, 14–15.
69 NASA, TAB, MPB 1/2/1, General Purposes Committee meeting, 3.12.1904.
70 Vivier 1969, 26.
71 WCPA, 3/AY 1/1/1/10, Town Council meeting, 3.5.1882; Gibbens, 1982, 131, 154–155.
72 WCPA, PWD 2/10/27, M19/32, McMillan to the Secretary of public Works, 4.5.1903; WCPA, 3/GR 1/1/1/10, Town Council minutes, 18.9.1903.
73 Baylis, 1951, vol. 3, 92.

same time into the reorganisation of the municipal staff. As a result of this investigation, the position of city engineer was abolished and Grubb dismissed. The salary of a city engineer was seen as unnecessary expenditure since the public works could be managed by superintendent of works with a considerably lower salary.[74]

In the case of Edward Harrison in Pietermaritzburg, he was demoted first, before eventually being dismissed. Harrison was clerk of public works from 1888 until 1893 when his designation was changed to that of borough engineer, despite him being a land surveyor, not a qualified engineer. By the end of 1895 the town council decided that they needed a qualified engineer and Harrison's designation was changed to that of an assistant engineer. He did not work well with the new borough engineer A.H. Waller and was dismissed in November 1896.[75]

The case of Charles Rees is unique. Rees was appointed as the town engineer of Cape Town in August 1873. In November 1874, when the town council found out that Rees was also holding a position at the Royal Engineers, he was given the choice to resign either from the Royal Engineers, or from the position of town engineer of Cape Town. Rees claimed that he could not resign from the Royal Engineers, so the town council removed him from the office of town engineer, but appointed him to act as town engineer while the position was being advertised.[76] Rees re-applied for his old position stating that his connection with the Royal Engineer's Department may terminate in 18 months, and that should his application be successful he will use his utmost efforts to obtain the termination within 9 months. The special joint committee, appointed for the screening of the candidates, pointed out in September 1875 that besides of being incompatible with the existing regulations for an officer of the municipality to hold a situation elsewhere, the duties of the office of town engineer were so important as to require the entire and undivided attention of the officer holding the appointment. They therefore recommended "that pending Mr Rees withdraw the condition contained in his application, and at once give up his situation in the Royal Engineer's Department, he be appointed to the office under consideration, but that in case he does not compel with that provision", Charles Hanson be appointed. It was moved that the appointment stands over for six months, and

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74 WCPA, 3/AY 1/1/1/17, The Special Committee report, in Town Council meeting, 6.11.1912; Grahamstown, Mayor's Minute, 1913, 12–13.

75 Meineke & Summers, 1983, 20–21.

76 WCPA, 3/CT 1/1/1/26, Town Council meetings from 25.11.1874 onwards.

that Rees be requested to continue to act as city engineer.[77] In January 1876, the town council finally dismissed Rees and called new applications since there had been no change in Rees' situation.[78] Rees was actually still working as a surveyor in the Royal Engineer's Department in 1879.[79]

Unknown reasons

When looking at the method and reason of exit of the engineers, the third category is made up from those engineers that we just don't know what happened. Most of the engineers in this group are those that we don't really have any information. Of Charles Hensham and R.W. Wright in Queenstown, we don't even know if they really were town engineers. Geo. A. Kearney (or Kearnley) was acting town engineer of Queenstown in 1901 but there is no mention in the town council minutes when or for what reason his tenure ended. The information concerning J. Kelly, the first town engineer of Aliwal North, could not be found.[80] In most of these cases, the sources do not reveal anything, the person just vanishes from the minutes, or the sources are missing.

Besides those already mentioned, this group includes George Ransome, P. Oliver, R. Gordon and T. Scott-Bayley of Green Point and Sea Point, C. Grellert and F.J. Holman of King Williams Town, A.J. Edwards of Wynberg, J. Daniel of Adelaide, Hughbert Baker of Pietermaritzburg, R.W. Nisbet of Newcastle, Messrs Northfield and Smith (See Figure 54) of Kroonstad, William McKenzie of Parys, and the first two town engineers of Pietersburg, the unknown first and R.W.B. Somerville.

77 WCPA, 3/CT 1/1/1/27, Town council meeting, 8.9.1875.
78 WCPA, 3/CT 1/1/1/27, Town council meeting, 26.1.1876.
79 Report on Oranjezicht Purchase Bill, 63.
80 Western Cape Provincial Archives were missing town council minutes from the relevant years.

Figure 54. Municipal officials of Kroonstad in 1904–1905. Town engineer Smith sitting second from right. (Serfontein, 1990, 260)

Summary

When looking at the reasons why engineers left their position, we can see that 30 of them left the position involuntarily, 69 left the position voluntarily and of the 19 we don't have enough information. This means that one engineer out of four was either dismissed, forced to resign, his contract was terminated or engineer died. The dismissed engineers (17) are the second biggest group after those who resigned after getting another position (23 engineers).

Among those who left the position voluntarily are calculated also those who resigned because of the problems with the town council, there were 11 of them. It can be questioned how voluntary their resignations were, but since these cases differ from those of forced resignations in a way that there are no signs of "resign or get dismissed" -situation, I have put them in the voluntary category.

9 The effects of depressions in engineer's departments

In this chapter, the effects of economic depressions on public works, engineer's departments and engineers themselves will be examined. The reasons for all the three depressions during the period under examination will be briefly mentioned, followed by an analysis of their effects on the number of municipalities which employed engineers. The main part of the chapter examines municipalities province by province. I will only give an overview of these three depressions without delving too deep on their causes. There is also the question of the level of depressions. Were they local, regional or national? I will not address this question since the depressions as such are not my main concern here. Depressions are looked only as a factor affecting the work and position of the town engineer.

Depressions

There were economic depressions in South Africa in the 1860s, 1880s and 1900s. These affected municipalities and their public works departments. Since public works were and still are the municipal activity that consumes most of the funds, it is no wonder that these departments suffered most during the depressions.

The economy of the Cape Colony, in the 1860s, suffered from a number of factors. Firstly, the local wool merchants could not cope with the foreign competition. Secondly, there was a severe period of drought in the Eastern Province. These led to a recession resulting the stopping of capital imports, retrenchment of the spending by the colonial government and closing of banks.[1] In Natal, the direct reason for the depression was the outbreak of war between

[1] Mabin, 1986, 281.

the Orange Free State and the Basotho in 1864. This war brought trade to a halt and caused a depression in land values.[2]

The depression in the early 1880s was caused by the collapse of diamond share prices, the end of the British occupation of the Transvaal and the drying up of the inflow of capital. The depression was intensified by another severe drought. Also the expenditure on wars in Transkei and Transvaal by the British government ceased.[3]

At the beginning of the 20th century, direct reason for the depression was the closure of the Transvaal gold industry during the Anglo-Boer War and the difficulties encountered in putting it back into full production.[4] The repatriation and settlement in the rural areas after the war was hindered by a severe drought.[5] During 1907, there was a considerable drop in the value of land; this tendency continued until 1911. This was caused partly by the general feeling of uncertainty of the political future in the Transvaal and in the Orange River Colony. The second cause was the financial crisis in Europe and the United States; and a strike of miners on the Witwatersrand was a third.[6] The Witwatersrand area, nevertheless, was the least affected area by this depression in South Africa.[7]

In the Cape Colony, the most affected area was the Cape Peninsula. Every municipality in the Peninsula was compelled to cut down expenditure. In most of the municipalities in the area, all municipal works were stopped. There were voices saying that this was done to such an extent that it was bordering neglect and would prove to be waste in the long run.[8]

In Natal, the depression was caused also by the decline in wartime expenditure and to the cessation of imperial funds which had previously flowed into the colony to pay for the repatriation and settlement of refugees. For instance, in Pietermaritzburg several businesses failed and merchants were left with goods for which there was little or no demand. There was also the uncertainty of a continuous supply of labour for the Rand mines; over speculation in building; reckless dealing in mining shares; the deviation of part of her Overberg trade to

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2 Scott, 1988, 90.
3 Watts & Agar-Hamilton, 1970, 27; Mabin, 1986, 293.
4 Guest, 1988, 128.
5 Van der Horst, 1942, 168.
6 Maud, 1938, 72.
7 Cook, 1975, 36.
8 Parker & Beck, 1910, 7–8.

Delagoa Bay; the restrictive customs policies of the Transvaal Colony; the spread of cattle disease; and the suppression of a Bambatha rebellion. There was a slight improvement in 1906/07, but after the world-wide recession in 1907 the local depression deepened. It was not until 1909 that there were some indications of an economic revival.[9]

Town Engineers

During the depression in the 1860s, the number of municipalities having a town engineer was small. In the Cape Colony, out of 35 municipalities four had engineers; in Natal there were two municipalities, Pietermaritzburg and Durban, of which the former had an engineer; none of the five municipalities in the Orange Free State had engineers at this stage. In other words, there were five town engineers in 42 municipalities, which means that only 12% of the municipalities had the service of an engineer.

By the 1880s, both the number of municipalities and the number of town engineers had grown somewhat. In the Cape Colony, there were 45 municipalities at the beginning of the 1880s and 67 at the end; when the depression started there were five town engineers and when it ended three. In Natal, there was a third municipality, Newcastle; both older municipalities had engineers when the depression started but only Durban had one after the depression. In the Orange Free State, there were 17 municipalities, still none having an engineer. In the Transvaal, there had so far been only municipal experiments, none of which worked. So in the early 1880s, there were seven engineers in 63 municipalities (11%) and after the depression four in 87 municipalities (4.6%).

At the beginning of 1903, there were 99 municipalities in the Cape Colony, five in Natal, 28 in the Orange River Colony and two in Transvaal, altogether 134. Of these, only a small number had a public works department led by a town engineer. In the Cape Colony, 12 municipalities had a town engineer, in Natal three, in the Orange River Colony one and in the Transvaal two, altogether 18 town engineers. By 1910 the number of municipalities in the Cape Colony was 117, in Natal there were still five, in the Orange River Colony 36 and in the Transvaal 32, altogether 190 municipalities. In the Cape Colony, the number of

[9] Guest, 1988, 128; Russell, 1911, 319–320; Harrison, 2002, 169.

town engineers had increased to 17, in Natal there was still three, in the Orange River Colony there was now also three and in the Transvaal nine, so altogether 32 engineers. This statistics shows that in 1903 about 13% of the municipalities had a town engineer and that by 1910 there was a town engineer in about 17% of the municipalities.

From these summary statistics one can see that the depression in the 1880s was the one with the largest effect on the number of engineers employed. The developments, however, were not as straightforward as the statistics suggest. The developments in each colony will be examined separately.

The Cape Colony

Earlier depressions

During the depression of 1860's, there were town engineers in Cape Town, Port Elizabeth, King Williams Town and Graaff-Reinet. Of these, only Cape Town had an engineer at the end of the decade. In Graaff-Reinet, W.L. Mackie had been appointed as town clerk, treasurer and town engineer in 1863 after the depression had already started. He was dismissed two years later after rows with the board of commissioners and its chairman; depression was partly responsible.[10] In Port Elizabeth, town engineer Robert Archibald died of complications after falling from a horse in 1867.[11] It is not explicitly stated but it is fairly certain that the depression was the reason for the town council leaving the position open until 1881. In King Williams Town, R.S. Webb had a position as town clerk, treasurer and borough engineer in 1862–1865 and town clerk and borough engineer in 1865–1869. He resigned in January 1869 after his salary had been reduced.[12]

When the depression started in the 1880s, there were town engineers in Cape Town, Grahamstown, King Williams Town, Graaff-Reinet and East London. When the depression ended there were still engineers in Cape Town and King Williams Town; Kimberley also appointed their first engineer during this

[10] Henning 1975, 73–74; Minnaar 1987a, 14–15.
[11] Raymer 2008, 158.
[12] Bateman 1961, 9–10, 13.

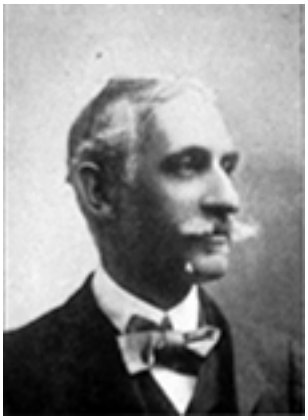

Figure 55. Arthur H. Reid, town engineer of Grahamstown, 1879–1882. (*South African Who's Who*, 1915)

depression. Grahamstown had been suffering from the chronic shortages of funds and still the prestige demanded that they build a new town hall. In 1879, Arthur Henry Reid (See Figure 55) was appointed town engineer to realise this building project. He was dismissed the night before the opening of the town hall in 1882.[13] In Graaff-Reinet, depression was only partly responsible for the resignation of the town engineer Humphrey Henchman. He had been appointed to build a new water supply scheme in 1881; the scheme, however, proved to be controversial and there were lots of animosity towards Henchman until he resigned after finishing the scheme in 1884.[14]

In East London, the change in economic situation was dramatic. By July 1883, the number of municipal labourers was reduced by a third. The following month a road gang was dismissed and replaced by hard labour prisoners. In 1884, severe drought, land speculation, the stoppage of public works and other problems drained the resources of East London. A special committee was formed to consider savings. As a result the salaries of the town engineer and town clerk were reduced, three assistants were retrenched and the offices of streetkeeper and location inspector were combined. In 1885, the limited funds rendered street construction impossible and the town was not extended at all. In April, town engineer G.F. Newsam was retrenched since the municipality could not undertake any major public works. Salaries of other officials were also reduced. Besides these, the town hall project and an electric lighting scheme were shelved. It has been claimed that, had either one of these been started, the municipality would have gone bankrupt.[15]

[13] Gibbens 1982, 131.
[14] Henning 1975, 86–88.
[15] Tankard 1991, 79–82.

The first decade of the 20th century

Only ten municipalities had a town engineer throughout the whole depression: Cape Town, Port Elizabeth, King Williams Town, East London, Kimberley, Wynberg, Green Point and Sea Point, Simon's Town, Claremont and Kalk Bay-Muizenberg. In another two municipalities, Mowbray and Woodstock, which had town engineers at the beginning of 1903, the engineers nearly survived the depression.

In Mowbray, the council found itself in grave financial difficulties by 1907. This resulted in a reduction of salaries and retrenchment of staff. These steps had a crippling effect on further town development. By December 1909, the financial situation was so bad that the decision was made to abolish the office of the town engineer. The post of the assistant engineer had already been abolished earlier. The town council regretted this but the necessity for rigorous municipal retrenchment and a complete freezing of construction projects left them no other alternative.[16] In Woodstock, the development followed along similar lines.

In Cape Town, the economic depression of the 1900s was a catalyst for a reversal in the attitude of the city council towards a joint water scheme with the suburban municipalities. During the depression, an interest group within the city council charted Cape Town on a course of economic austerity and political isolation from the suburbs. Cape Town's water consumption also slowed down and even decreased due to the onset of an economic depression which undermined the urgency of the new water scheme for Cape Town.[17] The depression had more effects. The separate water works department, established in 1901, was amalgamated back with the city engineer's department, in 1906, as it was before. Water engineer Robert Wynne-Roberts agreed to retire from the corporation service at the end of 1906.[18] At the beginning of the following year, 16 members of the staff of the city engineer's department and six from the previous water engineer's department were retrenched.[19] In March 1907, city engineer

[16] The Municipality of Mowbray, 1985; WCPA, 3/MWY 6, Town Council Special Meeting, 2.12.1909; UNISA, Testimonial from the Mowbray Municipal Council, 31.3.1910, in The Corporation of the City of Cape Town: Appointment of City Engineer. Application of Francis B. Drake, Assoc. M. Inst., C.E., Town Engineer, Municipality of Oudtshoorn: with copies of six testimonials; Parker & Beck, 1910, 7–8.

[17] Grant, 1991, 123.

[18] Cape Town, Mayor's Minute, 1907, i–ii; Mäki, 2008, 68–69.

[19] Cape Town, Annual Report of the City Engineer and Surveyor, in Mayor's Minute 1907,

Figure 56. W. J. Jeffries, acting city engineer of Cape Town, 1907–1914. (*South African Who's Who*, 1915)

John Cook resigned following accusations of preferential treatment of tenders in connection with road works.[20] As a result of this resignation the city council decided to save money and appointed the assistant city engineer, William Jeffries (See Figure 56), as acting city engineer. Jeffries continued in his acting role until he retired in 1914. The number of staff was reduced once more in 1908–1909.[21]

In East London, the downturn was first noted among the poorer sectors of the population during 1903 and it progressed slowly until the town found itself in the trough in about 1907. Land prices also slumped so that no further municipal sales could take place prior to 1914. The economic distress was brought to the council's attention in March 1904. In an effort to provide as much employment as possible, public works were initiated and whites were hired wherever possible in the place of black labourers. The cost of the work, however, escalated because the new labourers were paid more, but did less work than their African counterparts.[22] The town engineer Walter Bond (See Figure 57) resigned early in 1906 and in September reference was made to 57 applications for the position. The town council, however, unanimously resolved that the appointment was deferred until such time that a decision was made whether the Wolf River water supply scheme would proceed.[23] Finally in April, 1907 the public works committee decided that the special committee could examine the old applications.[24] On the 26th June the special committee submitted the list of six names of which John Powell, who had already been town engineer in 1897–1900, was appointed.[25] The Wolf River scheme had become an Act of Parliament in August 1906 but it was never implemented. At a meeting

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i–ii.

20 Shaw, 1975, 135–136.

21 Cape Town, Annual Report of the City Engineer and Surveyor, in Mayor's Minute 1907, i; Parker & Beck 1910, 7–8.

22 Tankard, http://knowledge4africa.com/worldhistory/proto-apartheid07.htm.

23 WCPA, 3/ELN 1/1/1/16, Municipal Council special meeting, 28.9.1906.

24 WCPA, 3/ELN 1/1/1/17, Public Works Committee meeting, 10.4.1907.

25 WCPA, 3/ELN 1/1/1/17, Municipal Council meeting, 26.6.1907.

Figure 57. Town council and officials of East London in 1904. Town engineer Walter Bond second from right in back row. (East London, Mayor's Minutes, 1904)

of ratepayers in January 1907, it was decided that it was not a suitable time to raise a loan for a permanent water scheme. In November, Powell brought the council's attention to a possible new scheme on the Buffalo River itself. Limited funds made this temporary scheme a good substitute for better options. Initially, the depression led to postponement of Wolf River scheme but in February 1909 Powell persuaded the council that the cost of the scheme would be prohibitive.[26]

The town engineer's department in Port Elizabeth also suffered staff reductions in 1906. This left on an assistant engineer, an architectural and building assistant, a sewerage scheme assistant, a town surveyor, with two administrative persons. The following year, a drainage scheme was postponed because of the impossibility to raise loans on acceptable terms.[27]

In King Williams Town, first the ratepayers and then Parliament in 1906 approved borough engineer James Maden's scheme for the Pirie Water Works. In 1907, some doubt was expressed as to whether Maden's scheme was necessary because of high rainfall and it was decided to defer the construction of the dam.

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[26] East London, Town Engineer's Report, in Mayor's Minute 1907, 44; Tankard, 1990, 466–468.

[27] Port Elizabeth, Town Engineer's report, In Mayor's Minute 1906, 36; Port Elizabeth Mayor's Minute 1907, 7.

Figures 58 and 59. Maden dam of Pirie water works in King William's Town and plague commemorating opening of the works. (Photos: Harri Mäki)

The following year was a drought year and the construction of the dam was started in April 1908, and eventually completed in 1910.[28] (See Figures 58 and 59.)

In Kimberley, the mayor wrote in his minutes as late as 1907, that in his opinion there was not a town in the Colony that could show as good financial record as Kimberley; their debt was practically a nominal one.[29] At the beginning of 1908, the staff of the public works department was, however, reduced to the same level as in 1904. Subsequently, in August, a further reduction took place necessitating dispensing with the services of three road parties and their equipment.[30]

Of the other five municipalities, Wynberg had the best position. According to Robinson, the good municipal services and the efficient business sector placed it in a favourable position to withstand the depression.[31] The other four had their ups and downs. Rondebosch which appointed town engineer only in 1903 belongs also to this category of small suburban municipalities of Cape Town.

There were six municipalities that appointed a town engineer during the depression; Somerset East in 1906, Grahamstown and Uitenhage in 1907, and Umtata, Aliwal North and Adelaide in 1909. Of these, the town engineers of Somerset East and Adelaide resigned during 1909 and the positions were left open. I will concentrate on Grahamstown and Uitenhage.

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28 Nelson, 1979, 20–21.
29 Kimberley, Mayor's Minute 1907, 21.
30 Kimberley, Borough Engineer's Report, in Mayor's Minute 1908, 48.
31 Robinson, 1998, 1.

In Uitenhage, the population in 1901 was 12197. The census returns for 1911 however showed that the population had dropped to 11573 because of the depression. In June 1904, a new sanitary scheme was laid before the ratepayers. Two draughtsmen were employed to draw up the necessary plans. By June 1908, the draughtsmen had completed the drawings but the council shelved the project as they could not raise the necessary funds to finance it.[32] The appointment of a town engineer was an affair in two stages. In early 1907, the position of superintendent of works was advertised. The town council had 22 applications for the position and after interviews appointed Walter J. Mason. After seven months, his title was changed to that of town engineer.[33]

In Grahamstown, the board of works employed more men and had a greater annual expenditure than any other department. It was therefore no surprise that its functioning, efficiency and expenditure became the subject of criticism on a number of occasions. In 1907, at a special meeting of the city council, the board of works was singled out for special attention. Several amendments were made regarding its functioning and personnel; the most important was the appointment of a competent engineer to supervise the department. In August, Ernest Grubb was chosen out of 130 applicants to the position of clerk of works, the title which was subsequently changed to the designation of "city engineer". Public work schemes, however, were hampered by a severe shortage of funds. The only major public works project completed during the depression, the construction of the Jameson Reservoir, was financed with a loan. The board of works controlled its activities with an iron fist.[34]

Natal

Pietermaritzburg had a town engineer at the beginning of both earlier depressions and on both occasions, he was dismissed during the depression. Durban appointed their first borough engineer just before the depression started in the 1880s. The effects of depression can be gleaned from the fact that the

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32 Herholdt, 1988b, 24; Herholdt, 1988a, 69–70.

33 WCPA, 3/UIT 1/1/1/28, Town Council meetings, 16.4., 19.4. and 25.4.1907; WCPA, 3/UIT 1/1/1/29, Town Council meeting, 26.11.1907.

34 Grahamstown, Mayor's Minute, 1908, 4–5; Southey, 1984, 113, 144.

municipality appointed a consulting borough engineer for one year after J.F.E. Barnes resigned in 1887.

Of the five municipalities in Natal in the 1900s, Pietermaritzburg and Durban had borough engineers during the depression in the 1900s and Dundee did not have a borough engineer at all. Ladysmith had a borough engineer in 1904–1906. Borough engineer W.R.H. Chipperfield died accidentally in March 1906, just when the depression started to get worse. The position was left open until 1922.[35] In Newcastle, the town engineer George Jenkins, together with the town foreman and cemetery caretaker, was dismissed in June 1904.[36] The position was open during the deepest depression and was filled in 1909 when R.W. Nisbet was appointed.

Pietermaritzburg passed through a period of commercial depression in 1864–1867. George Pigot Moodie was appointed as surveyor and engineer just before the depression started in March 1864. Two years later in March 1866, as a result of depression, his appointment was altered to that of a surveyor only because his services where no longer needed as engineer.[37] The retrenchment continued at the end of the year. The curator of parks was dismissed and all departmental expenditures were cut by at least a third. The retrenchment of all but the most necessary employees was considered and tenders were called for maintenance work and the collection of rates and rents. The situation got better only in the 1870s.[38]

In November 1882, Charles Henry Richards was appointed borough engineer. The municipal works were just starting to get momentum, when in August 1883 the public works committee recommended abolishing the whole borough engineers department. The town council, however, thought that is was necessary only to dismiss Richards.[39] There were other retrenchments: the town surveyor was paid only on the basis of each survey performed; the waterworks overseer and his staff were dismissed; and the posts of town clerk and town treasurer were combined. The recovery started in 1885 when a foreman of works and inspector of water works was appointed and the town surveyor's salary was restored.[40]

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35 NAB, 3/LDS 1/1/1/3, Town Council Meeting, 16.3.1906.
36 Baylis, 1951, vol. 3, 92.
37 NAB, 3/PMB 1/1/4, Town Council Meeting, 7.3.1866.
38 Ingham, 1898, 56–58; Parle, 1988, 124; Parle, 1989, 104.
39 NAB, 3/PMB 1/1/6, Town Council special meeting, 14.8.1883.
40 Meineke & Summers, 1983, 20.

During F. Walton Jameson's seven-year term of office as borough engineer (1902–1909), major developments such as the Edenvale Water Supply (See Figure 60) were implemented and the water-borne sewerage scheme was started. Only after two years in office Jameson lamented in his annual report, that

> the engineer's task has become a very trying one in this country, beset as he is on the one hand with a public who demand a zero of expenditure, for an overplus work, and on the other hand, a totally inadequate and unreliable weapon wherewith to combat the forces of nature and in the remodelling of her face.[41]

During the latter half of his service, the depression led to retrenchment of staff and salary reductions. Reductions took place in each of the years in 1907–1909, the reductions being 10% in the higher salaries and 5% in the lower ones. Economy measures included doing away with alternate street lights in central streets and curtailment of expenditure in almost every possible field of municipal operations. Finally the council stopped all capital works except the sewerage scheme. During 1908/09, the inspector of nuisances was retrenched and his staff

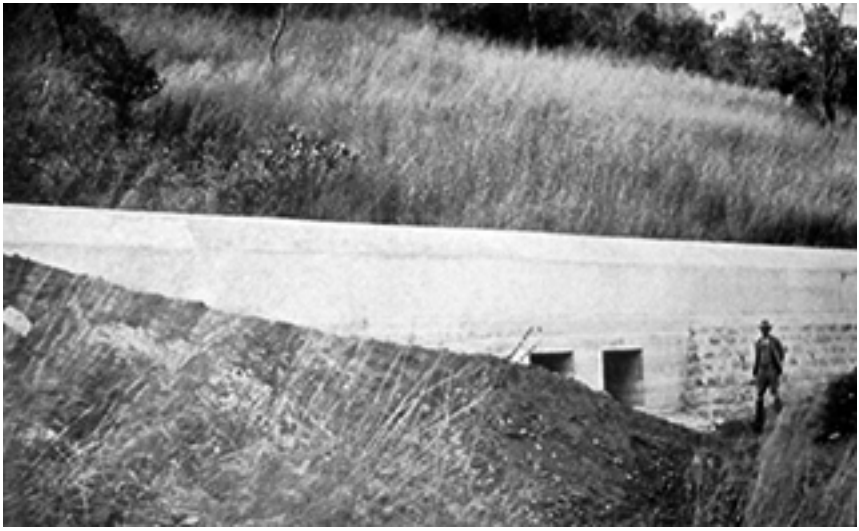

Figure 60. Finished culvert of Edendale water works in Pietermaritzburg. Man in photo is presumably borough engineer F. Walton Jameson. (Pietermaritzburg, Corporation Year Book, 1904)

[41] Pietermaritzburg, Borough Engineer's Report, in Corporation Yearbook, 1904, 52.

and work incorporated into the borough engineer's department. At the same time, Jameson was regretting that the corporation could not take advantage of the low price of labour and materials. In 1909, there was only one party of 11 doing maintenance work of the streets.[42]

In 1909, J.J. Niven, a new borough engineer wrote in his first report that the year had been one of continued business depression,

> with the result that works involving capital expenditure have as far as possible not been undertaken, and even works of maintenance and sanitation have been cut down to the lowest possible limit.

He continued that maintenance work, however, could not safely be suspended beyond a certain period, and was glad the business has been steadily improving. He wrote that there had been considerable savings at the cost of working when the department of inspector of nuisances was amalgamated with that of borough engineer; however, there had been signs that the economy had been carried too far. He did not mean to say that the efficiency of the service has suffered, but stressed that it was false economy to have the administrative and supervising staffs working at too great pressure.[43] The next year, he complained that although it was evident that the business prospects were brighter than during the past few years, the financial position still continued to be such that only such routine and maintenance works, that could not without danger be left over, could have been carried out. This policy, according to him, simply meant that when such works were undertaken they would cost far more than if they had been done in time.[44]

In Durban, the repairing of the flood damage to the Pinetown Reservoir was held over for financial reasons in 1906. There were also reductions in the repairs of streets and roads. According to borough engineer Fletcher, the condition of roads, however, was so good that this was not a problem for a few years.[45] In 1907, retrenchment slowed the preparation of the foundations of the new reservoir at Camperdown. Also the length of sewers laid during the year decreased from the previous year. During the year, the only work carried out by contract was that of road hardening, all the remaining new works were done departmentally. Fletcher

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42 Meineke & Summers, 1983, 23–24; Pietermaritzburg, Borough Engineer's Report, in Corporation Yearbook, 1907, 47; Pietermaritzburg, Corporation Yearbook 1909, 12, 19.

43 Pietermaritzburg, Borough Engineer's Report, in Corporation Yearbook, 1909, 60.

44 Pietermaritzburg, Borough Engineer's Report, in Corporation Yearbook, 1910, 76.

45 Durban, Borough Engineer's Report, in Mayor's Minute, 1906, 35, 37.

stated that the cost of departmental work compared favourably with that carried out by contract. This way he had also been able to keep the number of retrenched workers at minimum.[46]

The Orange River Colony

In the Orange River Colony, the capital city of Bloemfontein was the only municipality to have a town engineer in 1903. In Kroonstad, a town engineer was appointed in 1904 and in Parys in 1909 when the depression started to wane. Besides these, there was a town engineer only in Harrismith from 1903 to 1908.

In Bloemfontein, it became necessary during 1906 to re-organise staff, and the town clerk, city accountant and city engineer were instructed to submit a report on the matter. The finance and city lands committee considered the report and recommended following measures: in the city engineer's department the services of four people were dispensed with and one person transferred to the city accountant's office, and in town clerk's department and treasury one person retired, services of two were dispensed with and some positions were merged.[47] As soon as the new council took office the next year, a special committee was appointed to consider the retrenchments further. This committee gave careful attention to the matter and most of their recommendations were adopted, the result being a saving of about £2,000 in salaries. H.F. Peet, the city engineer, refused to accept his salary reduction for private reasons. In November, it was agreed between the council and Peet that as soon as the abattoir was finished and in working order, he would retire on one year's salary. The city stores were also abolished and the chief storekeeper was allowed to retire like Peet.[48] In 1909, the mayor was complaining in his minutes that with the limited amount of money it has been impossible to give the necessary attention to the proper repair and maintenance of the streets in the town.[49]

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46 Durban, Mayor's Minute, 1907, 4; Durban, Borough Engineer's Report, in Mayor's Minute 1907, 38.

47 Bloemfontein, Corporation Year Book, 1906, 33–34.

48 Bloemfontein, Corporation Year Book, 1907, 15–16; VAB, MBL 1/1/1/14, Town Council special meeting, 25.11.1907.

49 Bloemfontein, Corporation Year Book, 1909, 18.

In Harrismith, the town council in February 1908 received reports from various committees concerning entrenchment. The report of the public works committee was accepted with one exception; town engineer's salary was to be expunged. In March, the town council adopted the final retrenchment measures, among others giving one months notice to the town engineer and abolishing the whole public works department with the exception of the foreman and 10 natives. Town engineer W.J. Schooling protested against this dismissal without any result. After adopting these measures, the whole council also resigned.[50] In October, it was, however, realised that the building regulations demanded that some official acted as town engineer. As a result, sanitary inspector John E. Jones was appointed to act as town engineer.[51]

The Transvaal

In the Transvaal, only Johannesburg and Pretoria had town engineers at the beginning of 1903. The greatest expansion in the number of municipalities and the number of town engineers happened here, because British introduced municipal government in the area in 1903. Of the nine new municipalities established in 1903, eight appointed town engineers during 1904 and five still have them in 1910. Of the 21 municipalities created in 1904–1910, only two, Volksrust and Benoni, appointed town engineers during the examination period.

In Johannesburg, the depression led to the decrease of town's budget from £885,000 to £109,000 in 1906–1907. Some officials were retrenched and salary cuts were effected from 7.5% to 10% in the lower grades, and from 17% to 30% in senior members of the municipal service. Public criticism also led to the appointment of a municipal commission of inquiry by the Transvaal government in 1907. As a result of this inquiry several departments were reorganised.[52]

In Pretoria, the town council appointed a retrenchment committee in 1907. In the introductory report, the committee desired it to be recorded that the waterworks, tramways and electric supply departments had been taken over as going concerns. The committee was of opinion that the various departments

50 VAB, MHT 1/1/5, Town Council meetings, 24.2., 23.3. and 6.5.1908.
51 VAB, MHT 1/1/5, Town Council meeting, 16.10.1908.
52 Shorten, 1970, 453; Maud, 1938, 255.

should be consolidated, especially regarding accountancy and the collection of revenue. The committee recommended the retrenchment of certain officials and the reduction of salaries of others. The majority of the recommendations were accepted by the council and retrenchments and reductions in salaries made nearly £7,000 per annum.[53] For the town engineer's department this meant re-organisation, with most of the previous departments combined as a new works department. The only one to survive as an independent section was the drainage department. The retrenchment policy affected many positions in town engineer's department. The positions of deputy town engineer and surveyor were abolished and the services of the chief clerk and timekeeper were dispensed with. Some of their duties were transferred to the building inspector and second clerk. There was one new position, that of technical assistant, who was also required to perform the duties of a surveyor. Altogether salaries of eight municipal officials were reduced, five positions were abolished and services of 13 persons were dispensed with.[54]

In February 1908, municipal officials of Pretoria sent a petition to the town council asking that no further reductions in municipal workforce or their salaries were done. According to them, their workload had already grown nearly unbearable and further reductions would affect the quality of work. This petition apparently did not have the decided effect since the town council decided at the same meeting to merge the drainage department with the town engineer's department and retain the services of only some officials.[55] Only two weeks later, the town council also decided to abolish the position of the assistant town engineer.[56] At the end of May all the officials of the drainage department were informed that their services would not be required after the end of June. The public works committee recommended that only four officials should be retained on a temporary basis. H.D. Badcock, the town engineer, wrote a strong letter to the town council protesting against the dismissal of the drainage engineer, H.C. Kirby (See Figure 61), who had started in Pretoria only in January. According to Badcock, his dismissal would mean that the drainage work that had advanced rapidly would stop. Badcock would not take responsibility for the result of the

53 Pretoria, Mayor's Minute, 1907, 51.
54 NASA, TAB, MPA 1/1/1/13, Town Council meeting 26.9.1907.
55 NASA, TAB, MPA 1/1/1/14, Town Council meeting 25.2.1908.
56 NASA, TAB, MPA 1/1/1/14, Town Council meeting 12.3.1908.

Figure 61. H. C. Kirby, drainage engineer of Pretoria, 1908. (*South African Who's Who*, 1915)

dismissal. The town council voted for the matter and Kirby's services were retained temporarily by 9 votes against 7.[57]

In July, the town council decided to reduce all salaries temporary from 5 to 15%. The town engineer was in a category for 15% reduction.[58] Three weeks later Badcock was granted six months leave.[59] In August, the town council received the resignation letter from Badcock dated 20 July, one day before he was granted the leave.[60] In September, a decision was made to invite applications for the position of town engineer with the salary of £1,000 per annum; Badcock's salary was £800.[61] Although Badcock officially remained on as town engineer until his successor, F. Walton Jameson, took over in March 1909, he did not, for example, compile the town engineer's report for 1908. In this report, the acting town engineer wrote that the expenditure had been brought down to the minimum possible. No large works had been embarked upon, but only some minor plans and estimates, and technical work had been carried out by the staff.[62] The drainage engineer reported, that the staff now only consisted of two engineering assistants, one draughtsman and himself.[63]

In Boksburg, town engineer Harry Good presented his report of the water distribution scheme in May 1906. According to the scheme, the Rand Water Board would undertake the bulk supply and the municipality the distribution. It was recommended that Boksburg North should get a temporary water supply from nine stand-pipes from which the residents could draw free water. The town council decided that they will proceed at first with the reticulation for the central districts. The permanent distribution to Boksburg North had to wait until the

57 NASA, TAB, MPA 1/1/1/14, Town Council meeting 18.6.1908.
58 NASA, TAB, MPA 1/1/1/14, Town Council meeting 2.7.1908.
59 NASA, TAB, MPA 1/1/1/15, Town Council meeting, 21.7.1908.
60 NASA, TAB, MPA 1/1/1/15, Town Council meeting 27.8.1908.
61 NASA, TAB, MPA 1/1/1/15, Town Council meeting 10.9.1908.
62 Pretoria, Town Engineer's report, in Mayor's Minute, 1908, 28.
63 Pretoria, Drainage Engineer's report, in Mayor's Minute, 1908, 30.

growth justified the expenditure.[64] The new scheme for Boksburg North was presented in October 1907. This was a controversial scheme and discussions at the town council continued until January 1908 when the decision was made to start the construction of the first part of the scheme.[65] There were, however, financial complications and the actual work could be started only in May 1909.[66]

In Potchefstroom in 1906, town engineer J.A.G. Harrisson advocated the building of a large reservoir as early as possible above the Mooi River Bridge to secure a permanent water supply to the town. The government started to plan a reservoir and a canal for irrigation purposes in the same year. Because of a shortage of funds and the provisions of the existing irrigation law, the government, however, was not able to do anything in 1907.[67]

In Germiston, James Bright was appointed as acting town engineer in February 1907 with an understanding that the appointment might be confirmed as permanent.[68] There were, however, discussions about doing away with the position of town engineer as part of a general reduction in staff.[69] Bright, nevertheless, continued as acting town engineer until January 1908 when his appointment was finally confirmed. And even then one councillor was of the opinion that a clerk to the roads would have been sufficient[70]

In Krugersdorp, a committee was constituted to enquire into the administration of the municipality in 1908 and several meetings were held. Two reports were issued, one known as the majority and the other as the minority report. The latter was adopted and no fundamental alteration in the system was effected.[71]

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64 'Boksburg's Water'. *The East Rand Express*, 30.5.1906; 'Boksburg's Water'. *The East Rand Express*, 2.6.1906.

65 'Boksburg North'. *The East Rand Express*, 19.10.1907; 'Boksburg North'. *The East Rand Express*, 7.12.1907; 'Boksburg Town Council'. *The East Rand Express*, 28.12.1907; 'Boksburg Town Council'. *The East Rand Express*, 25.1.1908.

66 'Boksburg Town Council'. *The East Rand Express*, 22.5.1909.

67 Potchefstroom, Town Engineer's Report, in Mayor's Minute, 1906, 18; Potchefstroom, Mayor's Minute, 1907, 13.

68 NASA, TAB, MGT, 1/1/1/4, Minutes of the Meeting of the Germiston Town Council, 28.2.1907.

69 NASA, TAB, MGT, 1/1/1/4, Minutes of the Meeting of the Germiston Town Council, 16.8.1907; 'Germiston Municipality'. *The East Rand Express*, 13.7.1907; 'Germiston Town Council'. *The East Rand Express,* 14.9.1907.

70 'Germiston Town Council'. *The East Rand Express*, 18.1.1908.

71 Krugersdorp, Mayor's Minute, 1908, 16.

The common denominator between the three municipalities that dismissed their town engineer during the depression was that they were all situated outside of the gold bearing Witwatersrand. In Pietersburg, the mayor wrote in 1905 that the continued depression had debarred the council from considering any important public works scheme.[72] In 1907, the council made a reduction in salaries in the different departments to an amount of £3390 per annum. The mayor considered then that the salaries were at minimum.[73] In October 1907, John Gillespie was appointed as the new town engineer.[74] He was forced to resign in March 1908 because of differences with the public health and works committee over the road construction.[75] Gillespie's resignation came at an opportune time for the municipality. Pietersburg was in a difficult financial situation and a decision was made to do away with the entire town engineer's department. With this, by the inauguration of the new system of sanitary service and retrenchment in expenditure on roads, irrigation furrows and other reductions Pietersburg was able to reduce its annual expenditure by approximately £2250. This saving enabled the council to practically rid itself of debt. By reorganizing the departments which enabled the dispensing with the services of several officials, considerable further savings were made.[76]

In Standerton, the general purposes committee recommended in March 1906 that J. Edward Fitt, a resident engineer at the Standerton water works, should be appointed as the new town engineer. The town council accepted the proposal unanimously.[77] In 1907, there was some reorganising of the municipal structure as the town clerk presented all the matters presented earlier by the town engineer from mid 1907. Fitt, however, stayed as town engineer until September 1908 when the post was abolished.[78]

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72 NASA, TAB, TPB 341, TA1011, Pietersburg Municipality, Minute of His Worship the Mayor for the Year Ending October 1907, 6.

73 NASA, TAB, TPB 341, TA1011, Pietersburg Municipality, Minute of His Worship the Mayor for the Year Ending October 1908, 16.

74 NASA, TAB, MPB, 1/2/4, Minutes of the General Purposes Committee, 21.10.1907

75 NASA, TAB, MPB, 1/2/4, Minutes of the General Purposes Committee, 18.2.1908; NASA, TAB, MPB, 1/2/4, Minutes of the General Purposes Committee, 17.3.1908.

76 NASA, TAB, TPB 341, TA1011, Pietersburg Municipality, Minute of His Worship the Mayor for the Year Ending October 1908, 16.

77 NASA, TAB, MST 1/1/2, Minutes of the Standerton Municipal Council, 30.3.1906.

78 NASA, TAB, MST 1/1/3, Minutes of the Standerton Municipal Council 26.6.1908.

In Heidelberg, the town council discussed the report of the special committee appointed to inspect the working of the municipality in August 1907. The committee recommended merging of some offices and dismissal of some officials. There was also a minority report in which the dismissal of town engineer was proposed. The town council adopted the majority report.[79] The matter was, however, postponed over the elections in November. In a meeting on 25 November, a decision was made to dismiss the town clerk, town engineer, chief clerk, sanitary inspector, road overseer, water bailiff, and cemetery caretaker from the last day of the year. Applications were invited for the vacancies of town clerk, sanitary inspector, road overseer, cemetery caretaker, water bailiff, and junior clerk.[80] These vacancies were filled in December when the previous town engineer W.A. ter Horst was appointed as a new town clerk.[81]

When the Benoni township was established in 1904, the Transvaal was in the depths of the depression. The depression became worse as time went on. Several mines in the district were closed in 1907. At the beginning of 1909, however, things had improved and Benoni was one of the first towns to benefit from the revival of confidence. The increased economic activity led the establishment of a Chamber of Commerce in the town in October 1909.[82] The decision to appoint a town engineer was made at the town council in the same month. The works committee was of the opinion that the work of the town had grown so much that it needed a proper supervision; a duty that was so far carried out by a sanitary inspector.[83]

Summary

What happened in most of the municipalities during the depressions was that public works were stopped and the municipal staff was considerably reduced. When you think about the municipal finances during the late 19th and the early 20th century, it is easy to understand why these were the major cost reduction

79 NASA, TAB, MHB 1/1/1/3, Town Council special meeting 24.8.1907.
80 NASA, TAB, MHB 1/1/1/3, Town Council meeting, 25.11.1907.
81 NASA, TAB, MHB 1/1/1/3, Town Council meeting, 9.12.1907.
82 Humphriss & Thomas, 1968, 275.
83 NASA, TAB, MB, 1/1/3, Minutes of the Benoni Town Council, 22.10.1909; 'Benoni Town Council'. *The East Rand Express*, 23.10.1909.

methods. I have been focusing on the municipalities that had a municipal engineer at the head of public works, but it is fairly certain that these same methods were in use on the municipalities that did not have an engineer. It is highly probable that Pietersburg and Harrismith were not the only municipalities that closed their entire public works departments. What I am certain is that Graaff-Reinet and to a certain extent Pietermaritzburg in the 1860s, Grahamstown, East London and Pietermaritzburg in the 1880s, and Pietersburg, Standerton, Heidelberg, Harrismith, Mowbray and Woodstock during the last depression were the only municipalities that dismissed their town engineer because of the depression. An interesting detail of the last depression is that while the four first mentioned did this when the depression was in its deepest, Mowbray and Woodstock did it only when the depression was already starting to lift. Based on the sources you can only speculate that the reason was that the financial situation was so much worse in Pietersburg, Standerton, Heidelberg and Harrismith than in Mowbray and Woodstock. Also the bigger population base in the latter two might have been a factor.

There are also some cases where a new town engineer was appointed during the depression where earlier there was not one. Most of these cases happened during the last depression, Kimberley is the only exception. The appointment, in most of these cases, is connected to a need for professional to supervise public works. In the Cape Colony, Somerset East, Grahamstown, Umtata and Aliwal North, and in the Orange River Colony Parys belong to this category. In Newcastle and Benoni, the appointment can be directly connected to improved financial conditions in 1909. About Adelaide there is not sufficient information to make any conclusions.

At least in three cases the retrenchment policy caused by the depression led directly to a resignation of a town engineer. R.S. Webb in King Williams Town, H.F. Peet in Bloemfontein and H.D. Badcock in Pretoria were extremely unhappy with the retrenchment policies. Peet managed to make a deal with the town council and retired. Badcock resigned, tired of fighting against the public works committee, and went to work in Fiji. Webb did not approve the cutting of his salary. It is also possible that the resignations of Walter Bond in East London in 1906 and James Younger in Pietersburg in 1907 were connected to depression. Both might have seen the writing on the wall and decided to get out. Bond returned to England after three years in East London and it took over 18 months

to appoint his successor. Younger accepted a position under the Transkeian General Council in Umtata and about a year later the whole town engineer's department was closed in Pietersburg.

10 What was typical municipal engineer made of

Based on this research we can draw a picture of a typical municipal engineer. He was born in England and was about 36 years old when he was appointed. He had been trained through the apprenticeship system. There is also strong probability that his father had also been an engineer. His earlier working experience was mostly from the field of civil engineering and at the moment of the appointment he was already working for some other South African municipality in a lower position. Our engineer was appointed after an application process and he had about 40 competitors for the position. Applications had been gone through the special committee which had made recommendation of three applicants to the town council. Our engineer had been appointed unanimously at the town council. He most likely resigned after five years after getting better position somewhere else.

This picture is of course a gross simplification; there were a lot of variations. Although most of the engineers were originally from England, there was a significant number of engineers from other parts of the British Isles. Engineers outside of the English-speaking world were an exception and of the four certain cases, three had come to South Africa to work in the independent Zuid-Afrikaanse Republiek in the 18th century and the fourth, Wilhelm Westhofen, had been already working in England for over 20 years before proceeding to South Africa. And although most of the engineers were already in South Africa when they were appointed, there is again a significant number, especially in bigger cities, that came directly from the mother country without any earlier experience of South Africa or any other parts of the British Empire.

It is also important to realise that although most of the engineers had gone through the traditional apprenticeship system, there were also some who

had university or technical school training. It is also surprising how many of the appointed engineers were not civil engineers but mechanical engineers, especially railway engineers. It then does not come as a surprise that it seems that engineers having their earlier experiences from the railways had problems working within the boundaries of municipal regulations and dealing with the local politics. During the earlier years there were also architects and surveyors among municipal engineers.

It is clear that the need to supervise public works was the main reason for appointing the first municipal engineer. In later appointments, specific needs took a more prominent role. The number of applications for the positions varied a lot; in some cases the variation is so great that it is very difficult to explain. Of course, lucrative positions like Johannesburg received better applications than some smaller municipalities.

There was also a lot of variation in the methods of making the appointment. Advertising the position and calling for applications was the most typical, but there were other methods too. In some cases, a certain person was appointed directly; in some cases the designation of the person was changed. There are also many cases where the decision makers apparently were not satisfied with the applications. In these cases, the usual method was to call for new applications, but in some cases the whole process was postponed or the person appointed was not even among the applicants. The appointment was usually made after some committee had gone through applications and made its recommendations.

When looking at the salaries of the engineers, the trend was that they got better during the time. You can also make the generalisation, that the bigger the municipality, the bigger the salary. Nevertheless, there were some interesting exceptions. In some cases, the salaries in earlier years were surprisingly high when compared with the later salaries; in some cases small municipalities paid amazingly high salaries.

The economical depressions were difficult times for town engineers. The likelihood of losing their jobs increased considerably during the depressions of the 1860s, 1880s and 1900s. Not to say that the job of town engineer was easy in other times. As we can see from chapters seven and eight, the likelihood of getting sacked was there all the time. The position of engineer was not strong when there were difficulties with the municipal decision makers. There were laws regulating

the dismissals of municipal officials only in the 1920s. In these earlier years, the only job security was in most cases the three months notice time.

There was bound to be problems also if the engineer did not have any earlier experience about the municipal decision making process. This can be seen in many cases. Engineers who have been working in railways or in private business had considerable difficulties in adjusting for a working environment where there were more boundaries and rules. In most cases, the town councillors were also very conservative in their thinking and a young, progressive engineer coming from a wider world was too much for them. Consequently there were only 11 engineers known to go into a retirement from their position. Strong majority of them either resigned for some reason or was forced out of the job.

Of the overall development, it can be said that even if the first engineers were appointed in the 1850s, the number of municipalities having an engineer started to increase only at the end of the 1890s. Around this time, the small municipalities neighbouring Cape Town had grown so populous that they started to appoint engineers. The other jump in numbers was after the Anglo-Boer War when the number of municipalities in the northern colonies having an engineer went from three to fifteen. The same development can be seen if we look at the proportion of municipalities having an engineer. From 10% in 1860 it went down to 4.8% in 1890 and then turned upwards, 14.2% in 1900 and 18% in 1910. The number of municipalities grew from 18 in 1850 to 181 in 1910.

Appendix 1: List of the engineers

	Municipality	Tenure	Age when appointed	Nationality	Training	Reason for exit
?	Pietersburg	1903–June 1904	Unknown	unknown	unknown	unknown
Aburrow, Charles	Johannesburg	1893–1901	41	English	Apprenticeship	Dismissed
Anderson, John	Pietersburg	November–December 1904	Unknown	Australian?	unknown	dismissed
Andrews, G.S. Burt	Johannesburg	1905–1927	37	English	Apprenticed to his father	Retired
Archibald, Robert	Port Elizabeth	1858–1867	46	Canadian	Apprenticeship	died
Ashenden, Percy J.	Rondebosch	1903–1913	48	English	Apprenticeship	resigned
Ashplant, William Norman	Pietersburg	October–November 1904	26	English	Apprenticeship	other job
Attridge, Ernest William	Simon's Town	1900–1912	28	English	unknown	other job
Badcock, Hugh Daniel	Pretoria	1902–1909	31	English	MA in mathematics, University of Oxford	Resigned
Baines, A.C.V.	Somerset East	1905–1909	Unknown	unknown	unknown	resigned
Baker, Hughbert	Pietermaritzburg	1851–1853	Unknown	Irish	unknown	unknown
Barnes, John F.E.	Durban	1882–1887	31	Irish	Apprenticed to his father	other job
Bennett, Thomas	Kalk Bay-Muizenberg	1902–1906	51	English	Apprenticeship	forced to resign
Bond, Walter William	East London	1903–1906	42	English	Apprenticeship	resigned
Bonnar, J.L.	King Williams Town	1898–1899	Unknown	unknown	unknown	dismissed
Bright, James	Germiston	1908–1932 (acting 1905–1906 and 1907–1908)	36	Irish	unknown	retired
Brooks, E.J.D.	King Williams Town	1900–1903	31	English	unknown	resigned
Brooks, E.J.D.	Umtata	1909–1911	40	English	unknown	other job
Brown, Frank Losenby	Kroonstad	1905–1911	27	English	apprenticeship	other job
Bruce-Brand, Avon	Beaufort West	1869–1877	26	Scottish	unknown	dismissed
Butterworth, Arthur Shaw	Port Elizabeth	1902–1917	28	English	Apprenticeship	died
Caink, Thomas George	King Williams Town	1910–1926	Unknown	unknown	unknown	other job

Cairncross, Thomas Wilson	Cape Town	1882–1894, acting 1897–1898	37	South African (Cape Colony)	Educated at the South African College and Glasgow University, apprenticeship	resigned
Callen, Thomas	Kimberley	1887–1920	30	Scottish	Trained by his father	retired
Cameron, James	Cape Town	1856–1857	56	Scottish	Studied mathematics and chemistry at University of Perth, apprenticed to a carpenter	resigned
Cato, William Watts	Durban	1889 (acting)	40	South African (Natal)	Apprenticeship	position filled
Chipperfield, W.R.H.	Ladysmith	1904–1906	46	English, born in India	apprenticeship	died
Cook, John	Cape Town	1902–1907	Unknown	English	unknown	forced to resign
Daniel, J.	Adelaide	1909	Unknown	unknown	unknown	unknown
Dobson, William Henry	Standerton	1903–1905	28	English	Apprenticeship	forced to resign
Drake, Francis Bragg	Mowbray	1901–1910	35	English	Apprenticed to his father	dismissed
Dunbar, William	King Williams Town	1881–1888	Unknown	unknown	unknown	resigned
Edwards, A.J.	Wynberg	1900–1902	unknown	unknown	unknown	unknown
Evans, John Isaac	King Williams Town	1899–1900	Unknown	unknown	unknown	resigned for health reasons
Farrant, William	East London	1902–1903 (acting)	29	unknown	unknown	resigned
Fitt, J. Edward	Standerton	1906–1908	37	English	Apprenticeship	dismissed
Fletcher, John	Durban	1889–1918	31	English	Apprenticeship	retired
Flower, James J.A.	Cape Town	1872–1873	25	English	Apprenticeship	resigned
Forrester, T.A.J.	East London	1903 (acting)	32	Scottish	Apprenticeship, studies in Edinburgh University	other job
Forrester, T.A.J.	Germiston	1904–1905	33	Scottish	Apprenticeship, studies in Edinburgh University	forced to resign
Freeman, Horace	East London	1906–1907 (acting)	43	English	unknown	position filled
Gellatly, John	Queenstown	?1905–1910?	43	Scottish	unknown	other job
Gellatly, John	Ladybrand	?1910–1912?	48	Scottish	unknown	unknown
Gillespie, John	Pietersburg	1907–1908	54	Scottish	Apprenticeship	forced to resign
Good, Harry	Boksburg	1904–1913	32	English	Apprenticed to his father	resigned
Gordon, R.	Green Point and Sea Point	1894 (part-time)	Unknown	unknown	unknown	unknown
Gray, W.H.	Woodstock	1899–1900	Unknown	unknown	unknown	forced to resign
Grellert, C.	King Williams Town	1879	Unknown	unknown (German?)	unknown	unknown
Grey, ?	Port Elizabeth	1858	unknown	unknown	unknown	dismissed

Grey, George R.	Johannesburg	1892–1893	44	English, born in India	Apprenticeship	Forced to resign
Grubb, Ernest	Grahamstown	1907–1912	33	Irish	Apprenticeship	dismissed
Hancock, Harry	Klerksdorp	1904–1917	41	English	Apprenticeship	retired
Harrison, Edward	Pietermaritzburg	1893–1896	33	Irish	unknown	dismissed
Harrisson, J.A.G.	Potchefstroom	1904–1912	39	English	unknown	retired
Henchman, Humphrey	Graaff-Reinet	1881–1884	unknown	English	Apprenticeship	resigned
Hensham, Chas.	Queenstown	?1879–1881?	Unknown	unknown	unknown	unknown
Heward, Richard Henry	Green Point and Sea Point	1899–1914	44	English	unknown	retired
Hoggar, Robert	Grahamstown	1859–1861	44	English	unknown	resigned
Holman, F.J.	King Williams Town	1880–1881	Unknown	unknown	unknown	unknown
Howells, Daniel Peter	Kalk Bay-Muizenberg	1908–1911	28	Welsh	Swansea Technical College; Apprenticeship	other job
Hughes, George F.	Pietersburg	1907 (acting)	42	Welsh	unknown	position filled
Humphris, W.A.	Piet Retief	?1909–1914?	Unknown	unknown	unknown	unknown
Jameson, Frank Walton	Pietermaritzburg	1901–1909	28	South African (Natal)	Apprenticeship; course at the Technical University of Nottingham	other job
Jameson, Frank Walton	Pretoria	1909–1920	36	South African (Natal)	Apprenticeship; course at the Technical University of Nottingham	other job
Jeffries, William James	Cape Town	1907–1914 (acting)	51	English	Apprenticeship	retired
Jenkins, George	Newcastle	1900–1904	Unknown	unknown	unknown	dismissed
Jones, John E.	Harrismith	1908–1911? (acting)	unknown	unknown	unknown	unknown
Karlson, August	Pretoria	1899–1902	41	Swedish	Diploma in engineering from the University of Stockholm	Contract terminated
Kearnley, Geo. A.	Queenstown	1901 (acting)	unknown	unknown	unknown	unknown
Kelly, J.	Aliwal North	1909–1910	Unknown	unknown	unknown	unknown
Knox, E.B.J.	Cape Town	1880–1881 (acting)	35	Irish	Apprenticeship	position filled
Knox, E.B.J.	Johannesburg	1892 (acting)	47	Irish	Apprenticeship	position filled
Ladell, Hugh Master	Wynberg	1902–1928	22	English	Apprenticeship	resigned
Laffan, George Bastable	Pietermaritzburg	1898–1901	47	Irish	Studied Civil Engineering in Queen's University, Cork	contract not renewed
Laughton, John	King Williams Town	1893–1897	Unknown	Australian	unknown	other job
Laughton, John	Port Elizabeth	1897–1898	unknown	Australian	unknown	resigned

Leitch, Donald Calder	Johannesburg	1902–1904	49	English	Apprenticeship, studied engineering in Edinburgh University	other job
Lutz, Ernst	Pretoria	1896–1897	48	Hungary/Swiss	Diploma in engineering from the Zurich Polytechnic	Resigned
Mackie, W.L.	Graaff-Reinet	1863–1865	unknown	unknown	unknown	dismissed
Maden, James	Claremont	1901–1914	59	English	Self-educated	retired
Maden, James	King Williams Town	1903–1910	24	English	Studied engineering at The South African College, Cape Town; apprenticeship	other job
Malloch, William Farquhar	Uitenhage	1899–1905	38	Scottish	unknown	resigned
Mason, Walter John	Uitenhage	1907–1911	39	Australian	apprenticeship	other job
Mason, William McGeorge	Benoni	1909–1911	Unknown	unknown	unknown	unknown
McKenzie, William	Parys	1909–1914	unknown	unknown	unknown	unknown
McMaking, Malcolm John	Uitenhage	1905–1907	25	English	unknown	other job
McMillan, James Peter	Graaff-Reinet	1901–1903	34	Scottish	Apprenticeship	dismissed
Menmuir, Robert William	Woodstock	1901–1913	34	English	Apprenticeship	resigned
Miles, William Henry	Port Elizabeth	1881–1886 (municipal architect and engineer)	24	English	Apprenticeship	resigned
Miles, William Henry	Johannesburg	1889–1892	32	English	Apprenticeship	Dismissed
Moodie, George Pigot	Pietermaritzburg	1864–1866	35	South African (Cape Colony)	unknown	resigned
Mumford, John Phillips	Kroonstad	1903–1904	45	Welsh	Trinity College, Cambridge; apprenticeship	resigned
Newsam, George Frederick	East London	1881–1885	35	English	unknown	dismissed
Nisbet, Robert Wilson	Newcastle	1909–1912	36	Scottish	unknown	unknown
Niven, James Just	Pietermaritzburg	1909–1925	35	Scottish	Apprenticeship	retired
Northfield, ?	Kroonstad	?–1903?	unknown	unknown	unknown	unknown
Olive, William T.	Cape Town	1895–1896	43	English	Certificate in Engineering Science at Glasgow University	resigned
Oliver, P.	Green Point and Sea Point	1887–1893 (part-time)	Unknown	unknown	unknown	unknown
Palliser, William Arthur	Queenstown	1899–1901	29	English	Victoria University, Liverpool	other job
Palliser, William Arthur	East London	1901–1902	31	English	Victoria University, Liverpool	resigned
Peet, Hastings FitzEdward	Bloemfontein	1898–1908	33	Irish	apprenticeship	retired

Penketh, Peter	Cape Town	1858–1872	42	English	unknown	resigned for health reasons
Pike, Alfred	Volksrust	1904–1921	26	English	Technical School	other job
Pilkington, Woodford	Cape Town	1854–1855	23	English, born in Trinidad	Trained by his father	other job
Powell, John	East London	1897–1900	29	unknown	unknown	other job
Powell, John	East London	1907–1927	39	unknown	unknown	retired
Ransome, George	Green Point and Sea Point	1884?–1887 (part-time)	32	English	apprenticeship	unknown
Rees, Charles	Cape Town	1873–1875, acting 1875–1876	Unknown	unknown	unknown	dismissed
Reid, Arthur Henry	Grahamstown	1879–1882	23	English	Trained by his father	dismissed
Richards, Charles Henry	Pietermaritzburg	1882–1883	Unknown	unknown	unknown	dismissed
Riley, John	Germiston	1906–1907	35	English	Apprenticeship	other job
Robarts, W.E.	Durban	1888–1889 (consulting engineer)	35	South African (Natal)	Apprenticeship	contract ended
Schooling, W.J.	Harrismith	1903–1908	30	Australian	apprenticeship	dismissed
Scott-Bayley, T.	Green Point and Sea Point	1898	Unknown	unknown	unknown	unknown
Small, G.H.	Port Elizabeth	1899–1902	unknown	unknown	unknown	resigned
Smith, ?	Kroonstad	1904–1905	unknown	unknown	unknown	unknown
Smith, George William	Port Elizabeth	1867–1868 (acting)	29	Scottish	Apprenticeship	
Somerville, R.W.B.	Pietersburg	July–September 1904	Unknown	Australian	unknown	unknown
Stewart, George Alexander	Bloemfontein	1908–1920	30	Scottish	apprenticeship	other job
Stewart, Thomas	Wynberg	1886–? (municipal engineer)	29	Scottish	Apprenticeship; Studies in Glasgow University	
Swallow, J. Stuart	Cape Town	1881–1882	32	English	Apprenticeship	resigned
Tennant, James	Cape Town	1876–1880	37	unknown	unknown	resigned
Ter Horst, W.A.	Heidelberg	1904–1907	37	Dutch	unknown	dismissed
Wallace, H.A.C.	Bloemfontein	1908	unknown	unknown	unknown	resigned for health reasons
Waller, Arthur H.	Pietermaritzburg	1896–1898	29	English	Apprenticeship	resigned
Webb, R.S.	King Williams Town	1862–1869	Unknown	unknown	unknown	resigned
Webster, Richard A.	Krugersdorp	1904–1914	30	English	Apprenticeship	resigned
Westhofen, Wilhelm	Kalk Bay-Muizenberg	1906–1907 (acting)	64	German	Studied at the Polytechnic School at Carlsruhe	contract ended
Wicksteed, John Hamilton	Port Elizabeth	1881	30	English	Apprenticeship	resigned
Wright, R.W.	Queenstown	1891?	unknown	unknown	unknown	unknown
Wynne-Roberts, Robert Owen	Cape Town	1898–1901	34	Welsh	Trained by his father	other job
Younger, James	Pietersburg	1905–1907	24	Scottish	unknown	other job

Appendix 2: Short biographies of the engineers

Aburrow, Charles, 1852–1933. Aburrow was born in Hambledon, Hampshire, England and educated at Brighton Grammar School. In 1868, he was articled for three years to Francis Newman, a district land surveyor for the Isle of Wight and town engineer for Ryde. Aburrow worked there for nine years as a civil engineer and architect. In 1879–1889, he was Chief Surveyor in the service of the London and South African Exploration Company in Griqualand West. In 1889, Aburrow moved to Johannesburg and had a private practice there until May 1893. In 1893–1901, he was town engineer of Johannesburg. In 1894–1895, Aburrow was the president of the South African Association of Engineers and Architects. From 1902 onwards he had a private partnership with Phillip Treeby.

Anderson, John. Town engineer of Pietersburg in November–December 1904.

Andrews, George Samuel Burt, 1868–1937. Andrews was born in Greenwich, England and educated at a private school. He was articled in 1881–1884 to his father, G.R. Andrews, engineer and surveyor to the Bournemouth Improvement Commissioners, and was his assistant in 1884–1886. Andrews was in 1886–1890 an assistant in the engineer's department of the Hornsey Local Board. In 1890–1891, he was resident engineer to the contractors of the Netherlands Railway, from Vereeniging to Elsburg. Andrews practised until 1893 in Johannesburg as a civil engineer and surveyor. From July 1893 until 1899, he was first the building inspector and then the assistant town engineer of Johannesburg. On the outbreak of the Anglo-Boer War, Andrews left for Pietermaritzburg, obtaining temporary employment in the borough engineer's office as assistant to George Laffan. In February 1900, he joined the Imperial Light Horse and took part in various military events including the relief of Mafeking. After eight months, Andrews obtained his discharge and returned to Johannesburg. He was acting town engineer in 1900–1902, deputy town engineer in 1902–1905 and in 1905–1927 town engineer. In 1907–1908, Andrews was the president of the South African Association of Engineers and in 1922–1923, was the chairman of the African District of the Association of Municipal and County Engineers. In 1922–1923, he was also the president of the South African Society of Civil Engineers.

Archibald, Robert, 1812–1867. Born on Prince Edward Island, Canada, Archibald trained as a civil engineer. In a court statement, Archibald said he had worked under Isambard Brunel and had mining experience in Scotland. He said he had been superintendent of the Port Elizabeth and Namaqualand Mining Company. In 1858, Archibald was appointed town engineer of Port Elizabeth. He died of injuries caused by falling off a horse.

Ashenden, Percy J., 1855–1915. Ashenden was educated at Wye College, Kent, and King's College, 1872–1875, serving articles as mechanical engineer in the workshops of Messrs. Blythe Bros., Limehouse, London. In 1875–1876, he served articles with Civil Engineers, Westminster, London. In 1876–1890, Ashenden was the assistant engineer and surveyor to the Blean Highway Authority, Bridge Highway Authority, and the commissioners for sewers for East Kent. In 1890–1891, he was resident engineer for Metropolitan and Suburban Railway in Cape Town. In 1891–1893, Ashenden was assistant engineer for the field work of the sewerage of the Cape Peninsula, Cape Town and suburbs. He was working for the public works department of the Cape Colony in Cape Town when he was appointed town engineer of Rondebosch in 1903. He resigned 1913 and died while working in Hankey.

Ashplant, William Norman, 1877–1916. Ashplant was born in Suffolk, trained as a surveyor and took an apprenticeship in Cape Town. This was interrupted by artillery service during the Anglo-Boer War. He was surveyor and draughtsman in Germiston in April–May 1904. Ashplant was town engineer of Pietersburg in October-November 1904. After Pietersburg, he served as chief and assistant engineer in the Bahamas, in Southern Nigeria and in 1913–1915 was city engineer of London, Ontario, Canada. Ashplant was killed in the First World War in Somme, France.

Attridge, Ernest William, 1872–1942. Attridge was born at Harwell, Middlesex, England. His date of arrival in Simon's Town is not exactly known, but his son remembers Attridge stating that he was in the Admiralty and engaged in the East Dockyard construction, so it is possibly in the late 1890s. He was town engineer of Simon's Town in 1900–1912. In 1912–1920, Attridge worked for the Cape Town municipality and was engaged in work on the Steenbras Dam. In 1920–1926, he was town engineer of Vryburg. In 1926, Attridge became town engineer of Krugersdorp where he remained until his retirement in about 1932. In retirement, he practised as a consulting civil engineer right up to his death in Krugersdorp.

Badcock, Hugh Daniel, 1871–1939. Badcock was born in Taunton, England. He received his early education at Clevedon and later at Crowcombe Rectory. Badcock arrived at Eton in 1884, and remained there till the end of the summer term of 1890. He studied in Balliol College, Oxford, 1890-1894 and received a M.A. from mathematics 1897. In 1897–1898, Badcock was resident engineer at the Weymouth Sewage Works.

From 1899 to 1901 he was a sergeant in the West Somerset Yeomanry in the Anglo-Boer War. From October 1900 till July 1901, Badcock was an assistant engineer to the town council of Pretoria. He was inspector of machinery to the department of mines in the Germiston district in 1901–02 and city engineer of Pretoria, in 1902–09. Badcock held the office of commissioner of works in Fiji, 1910–1912. In that colony, he took up the study of Arachnids, and wrote some pamphlets thereon. Badcock joined the temporary staff at Eton in 1914 and was on the permanent staff as mathematical master and keeper of the Natural History Museum from 1917 to 1928.

Baines, A.C.V. Baines was town engineer of Somerset East in 1905–1909. In 1912–1914, he was resident engineer of the Klipfontein Irrigation Board and from 1914 at least until 1924, resident engineer of the Hougham Abrahamson Irrigation Board in Cookhouse.

Baker, Hughbert, 1816–1873. Baker was born in Ireland and may have died in Australia. He arrived in Natal in April 1850. He was employed by the Pietermaritzburg board of municipal commissioners as town surveyor and engineer from July 1851. He left Natal in 1853.

Barnes, John Frederick Evelyn, 1851–1925. Barnes was born in Innistiogue, Kilkenny, Ireland, and educated at Trinity College, Dublin. He served a five years' pupilage, 1867–1872, to his father Frederick Pim Barnes. In 1873, Barnes had charge of extensive county works, under Alexander Tair, county surveyor in Antrim. Between the years 1874–1879 he was employed as engineer and surveyor for the Abercorn Estates, Northern Ireland. Barnes came to South Africa in 1879. He passed the necessary examination and was appointed government surveyor in 1880, a post he held for two years. Barnes was appointed borough engineer of Durban in 1882 but resigned from this position in 1887, when he was appointed to the post of the assistant colonial engineer and assistant surveyor general. He served in this position until 1893. In 1893–1910, Barnes was chief engineer of public works for Natal. From 1916 to 1917 he held office as a commissioner on the Board of the Income Tax Appeal Court and practised as a consulting civil engineer in Pietermaritzburg around 1920.

Bennett, Thomas, 1851–1911. Bennett was born in Presall Hall, Lancaster, England. He was educated at Lancaster Grammar School, and in 1869 was articled to the well-known firm of engineers at Bolton, Hall & Bradshaw, where he spent five years. In 1874, Bennett was engaged by Messrs. Rawlinson & Barnes, of Manchester, as assistant engineer. After four years' service, he was appointed engineer to the Wigton (Cumberland) Council. During his tenure of office, Bennett designed and carried out the main drainage and waterworks for the council, and on the completion of the work his services were retained by the local authorities of Cheshunt, Hertforshire, to draw up a waterworks and main drainage scheme, which was adopted and carried under

his supervision. In 1893, Bennett sailed for South Africa, and shortly after his arrival was appointed engineer to the Cape Town District Waterworks Company. In 1902–1906, Bennett was town engineer of Kalk Bay-Muizenberg. After his resignation, Bennett settled in Cleveland, Transvaal, and died in Malvern, Johannesburg.

Bond, Walter William, 1861–?. Bond was born in Preston, Lancashire, England. In 1878, he was articled with John Addie, afterwards Messrs. John Addie and Sons, engineers and surveyors, Preston, Lancashire. In 1882, upon the expiration of his articles, Bond remained with them as chief assistant. In 1886, he was appointed assistant to R.H. Wyrill, borough engineer and surveyor, Swansea. In 1887, upon George Bell becoming borough surveyor, Bond was his assistant, and, in 1890, was appointed deputy borough surveyor. Bond was borough surveyor before coming to East London in 1903. From East London he returned to England, to Liverpool in 1906 and stayed there until 1914 when he went to Brisbane, Australia.

Bonnar, J.L. Town engineer of King Williams Town in 1898–1899.

Bright, James, 1872–1944. Bright was born in Ireland. He was trained as an engineer there. After coming to South Africa, he joined the staff of the Germiston municipality as a surveyor in 1905. He was acting town engineer in 1905–1906 and 1907–1908 until appointed town engineer in 1908. Bright served as town engineer for the next 24 years and retired in May 1932. He died in Germiston.

Brooks, Edwin James Dewdney, 1869–1948. Brooks was born in Oxford, England. He was town engineer of King Williams Town in 1900–1903 and Umtata in 1909–1911. In 1911, Brooks was appointed chief engineer to the Transkeian and Pondoland General Council. He stayed in this position at least until 1924.

Brown, Frank Losenby, 1878–?. Brown was born in Walsall, Staffordshire, England. Having completed his studies at the Walsall Bluecoat School, he was articled to R.H. Middleton, borough engineer of Walsall, with whom he remained eight years. On the completion of his articles Brown was appointed the fourth engineering assistant, and some eighteen months later the third engineering assistant. In June 1902, he received the appointment as engineering assistant to the corporation of Durban, Natal, where he remained for two and a half years. In November 1904, Brown was appointed town engineer for Kroonstad. He resigned in 1911 after obtaining an appointment in the Colonial Office.

Bruce-Brand, Avon, 1843–1914. Bruce-Brand was born in Leslie, Fife, Scotland. At some point he was a bodyguard to Queen Victoria. Bruce-Brand came to South Africa to visit his uncle Dr. James Christie who was practicing in Beaufort West. He joined the railway department at Cape Town, and was one of the engineers to extend the line from Wellington, then the railhead, over the Hex River Pass to Beaufort West.

Bruce-Brand was town engineer of Beaufort West from 1869 to 1877. He moved away from Beaufort West in 1882. In the mid-1890s, Bruce-Brand was manager of the St. Augustine mine in Kimberley. Before the Anglo-Boer War he was in charge of a large engineering and farming scheme at Baviaanskrans in the Koffiefontein district of the Free State. From 1902 onwards Bruce-Brand lived in Stellenbosch.

Butterworth, Arthur Shaw, 1874–1917. Butterworth was born at Rochdale, Lancashire, England. He was educated at The Leys, Cambridge, and served a pupilage to Ambrose W. Cross, then borough and water works engineer, Loughborough, in 1889-1892. Butterworth was then appointed the assistant engineer to the Loughborough Corporation, and in 1893–1895, was engaged as resident engineer on the Loughborough Refuse and Sewage Disposal Works. In 1895–1896, he was engaged as a surveying assistant to E.G. Mawbey, borough engineer, Leicester. In 1896, Butterworth was elected to the position of the second assistant to E.J. Purnell, city and water works engineer, Coventry. In 1898–1900, he was the chief engineering assistant to J.E. Swindlehurst, city engineer of Coventry. In 1900–1902, Butterworth was borough surveyor in Hythe, Kent. He was town engineer of Port Elizabeth in 1902–1917. In 1916–1917, Butterworth was the honorary secretary of the African District of the Association of Municipal and County Engineers.

Caink, Thomas George. Caink was engaged under R.O. Wynne-Roberts, the hydraulic engineer of Cape Town, in carrying out investigations on the Berg and Wemmers Hoek catchment areas in 1903–1904. He acted as resident engineer during the construction of Maden Dam. In 1910–1926, Caink was town engineer of King Williams Town. In 1926, he went to Estcourt, Natal, as town clerk and engineer. From 1930 to 1934/35, Caink was town engineer of Umtata.

Cairncross, Thomas Wilson, 1845–1918. Cairncross was born in Cape Town. He was educated at the South African College and Glasgow University and served his apprenticeship with Messrs. Thos. Wingate and H. Bell, as marine and civil engineer from 1860 to 1867. Cairncross was chief engineer to the Newcastle and Tyne Trust, and then was at sea in various parts of the world. He was engaged on the Van Staadens Water Supply for Port Elizabeth and practiced for his own account for a period of six years in the Eastern Division of the Cape Colony. In 1881, Cairncross was appointed as the assistant city engineer of Cape Town and in 1882 city engineer. He resigned in 1894 but continued as engineer for water works until the end 1896, when he was appointed acting city engineer, which position he resigned in 1898. In 1912, he was appointed as hydraulic engineer in Graaff-Reinet and, at the time of his death he was resident engineer to the Hex River Irrigation Board.

Callen, Thomas, 1857–1938. Callen was born at Dundee, Scotland. He was educated at Dundee High School and received his early training in his father's office, and

on the death of his father held appointments as surveyor to the two road trusts. Relinquishing these appointments, Callen proceeded to South Africa and, in 1880, obtained a post in the town surveyor's office in Kimberley, and later, in 1887, became borough and subsequently city engineer of that city. He held this position until June, 1920, when he retired on pension.

Cameron, James, 1800–1875. Cameron was born in the village of Murthly near Dunkeld, Scotland. After attending the village school, he studied mathematics and chemistry at the university in Perth, and was then apprenticed to a carpenter. In 1824, Cameron offered his services to the London Missionary Society and was sent to Madagascar in 1826. There he taught carpentry, chemistry and brick making, built canals and a reservoir, introduced cloth spinning and set up the first printing press. Cameron stayed in Madagascar until 1836, when he and his family relocated in Cape Town, where he soon became established as a contractor and surveyor. Cameron was town engineer of Cape Town in 1856–1857. In 1863, he returned to Madagascar and remained there until his death.

Cato, William Watts, 1849–1915. Cato was born in Durban and worked there from the 1880s at least until 1906 when he emmigrated to the United States. He was educated in Durban, Verulam and Pinetown. Cato was then apprenticed to the building contractors Rolls and Pont for five years and spent a subsequent year in their employ before setting up practice of his own as an architect and surveyor in Durban. Cato was acting borough engineer of Durban in 1889.

Chipperfield, William Richard Hopkins, 1858–1906. Chipperfield was born at Vizianagram, India, but received his education at King's College School, London. He served his pupilage of three years, 1875–1878, with Baldwin Latham, with whom he remained as an assistant. After 14 years' service, Chipperfield obtained the appointment of engineer and surveyor to the Atherstone district, Warwickshire. He retained this position until 1902, when he went out to South Africa and joined the Public Works Department of the Cape Colony. Chipperfield obtained the post of the chief assistant engineer at Port Elizabeth. In September, 1904, he received the appointment of borough engineer of Ladysmith. In 1906, Chipperfield died from injuries sustained in a fall from his horse.

Cook, John, ?–1925. Cook served as borough surveyor of Lancaster before coming to Cape Town as city engineer for years 1902–1907. In 1905–1907, he was the first honorary secretary of the African District of the Incorporated Association of Municipal and County Engineers. After 1907, Cook returned to England and was engineer to Fylde Water Board in Blackpool until his death in 1925.

Daniel, J. Town engineer of Adelaide in 1909.

Dobson, William Henry, 1875–1952. Dobson was born in Beaconsfield, Buckinghamshire, England. After completing his schooling, he entered articles and was trained in the three disciplines of civil engineering, architecture and land surveying. On the outbreak of the Anglo-Boer War Dobson came to the Cape as a mounted soldier. After the war, he worked as a chief sanitary inspector in Claremont. In 1903–1905, Dobson was town engineer of Standerton. He was superintendent of works in Woodstock, when he was appointed to a similar position in Grahamstown in 1912. His title was soon changed to that of town engineer. In 1919–1921, Dobson was town engineer of Vereeniging and in 1921–1926, of Krugersdorp. He was appointed as town engineer of Simon's Town in 1927 and on the retirement of W.S. Gillard in August 1928 he took over also the duties of town clerk. Dobson retired from municipal service in 1940 and set up a small architectural practice, largely in the field of plans for new domestic housing and alterations to existing homes.

Drake, Francis Bragg, 1866–?. Drake was born in Leicester, England. He served a pupilage from 1881 to 1884, and was afterwards, until 1887, assistant to his father, F.E. Drake, engineer and surveyor to the South Stockton Local Board and to the Borough of High Wycombe. From 1887 to 1892 Drake acted as contractor's engineer for John Davidson, of Stockton and in 1892–1901, he was the assistant in the office of the borough engineer of Richmond, Surrey. In 1901–1910, Drake was town engineer of Mowbray. In 1910–1911, he was in Stockton-on-Tees and in 1911–1913, in sewerage engineer's office in Leeds. In 1913, Drake returned to South Africa as town engineer of Oudtshoorn. In 1914, he went to work at city engineer's office in Cape Town as road engineer and stayed there until retirement in 1924.

Dunbar, William, ?–1926. Town clerk and town engineer of King Williams Town in 1881–1888. Later the first engineer of the Johannesburg Waterworks Company.

Edwards, A.J. Town engineer of Wynberg in 1900–1902.

Evans, John Isaac. Borough engineer of King Williams Town in 1899–1900.

Farrant, William, 1873–?. Farrant was building inspector of Cape Town in 1901. In 1902, he was appointed to the same position in East London. In the same year, Farrant started as acting town engineer. He resigned this position in 1903. In 1906–1908, Farrant was engineer to the Milnerton Railway and Estates Company, Cape Town. From 1908 until sometimes in the 1910s, he was working in Nigeria. After returning to South Africa, Farrant worked at the Cape Colonial irrigation department in Cradock until 1917. In 1917–1933, he was working in the irrigation department in Bloemfontein. In 1932–1933, Farrant was the president of the South African Society of Civil Engineers. In 1940–1942, he was with the Vaal-Hartz Irrigation Works, in 1942–1945 in the irrigation department in Pretoria and in 1945–1949 in the irrigation department in Cape Town.

Fitt, John Edward, 1869–1945. Fitt was born in London, England. He served a pupilage of three years (1884–1887), to John Pollard. In 1888, Fitt was employed by Henry J. Tingle on the engineering work for the Melbourne Exhibition, and, subsequently, as an assistant to W.G. Forder, surveyor to the Plumstead District Board Works. In 1889, he was engaged by Messrs. Pollard and Tingle, principally on sanitary work for the Fincley Local Board. Since August 1889, Fitt was the assistant sanitary engineer for Messrs. Bateman, Parsons, and Bateman, in charge of the sanitary work being carried out in one of the districts of Buenos Aires. After coming to South Africa, he worked in the Public Works Department of the Cape Colony until 1904. In 1905–1906, Fitt was resident engineer for the Standerton water works and in 1906–1908, town engineer of Standerton. In 1910–1913, he was working in the irrigation department of Transvaal and in 1913–1915 in the irrigation department of the Orange Free State. In May 1915, Fitt was appointed as engineer to oversee the enlargement of the Springfontein Dam in Beaufort West but resigned after only one month because he was not happy with the stipulated conditions. In 1915–1931, his address was Southern Life Chambers, Bloemfontein. Fitt died in Germiston.

Fletcher, John, 1858–1938. Fletcher was articled in 1879–1882 to Ben. C. Cross, borough engineer and surveyor of Dewsbury. Afterwards he was appointed an assistant to the borough engineer of Nottingham. In 1884–1886, Fletcher was engineer to the Aston Rural Sanitary Authority. In 1886–1889, he was surveyor and engineer of Sutton Coldfield, Warwickshire. In 1889–1918, Fletcher was borough engineer of Durban. After retirement, Fletcher went first to East Griqualand to farm there, and then returned to live in Hillcrest, Durban.

Flower, James John Alexander, 1847–1888. Flower was born at the Baptist Parsonage, Chobham, Surrey, England. After being educated by private tutors, he served a pupilage to Messrs. A. and J. Inglis, marine engineers, Glasgow. Flower then proceeded to the Cape, and after being for a short time in private practice was appointed acting town engineer of Cape Town. In 1872, town engineer Penketh was pensioned, and Flower appointed his successor. He never personally took up the appointment and resigned in 1873, preferring to remain as the London representative of the firm in which he was a partner, namely, Messrs. James Flower and Sons, mechanical engineers, largely occupied in the construction and importation of machinery for gold-mining. Flower was thus occupied until the spring of 1888, when the firm was obliged temporarily to suspend payment. This event caused a shock from which Flower never recovered.

Forrester, Thomas Adam Jardine, 1871–?. Forrester was born in Old Monkland, Scotland. He attended the Edinburgh University and served an apprenticeship with Sir William Arrol & Co., Glasgow, in 1888–1891. In 1891–1893, Forrester was with A. & J. Main Ltd, constructional engineers, Scotland, and in 1893–1894 with Francis Morton & Co., Ltd., Garston, Liverpool. In 1894–1899, he was consulting engineer

in Glasgow. Forrester served during the earlier part of the Anglo-Boer War and was relieved after serious injuries. He was building inspector in East London in 1903, when he was appointed also acting town engineer. In 1904–1905, Forrester was town engineer of Germiston. After that, he returned to London, Britain. In 1916, Forrester retired as waterworks engineer for Quebec, Canada and returned to Scotland.

Freeman, Horace, 1863–?. Freeman was born in Billingsford, Norfolk, England. He was educated in Dulwich College and served his articles with a local architect. Freeman came to South Africa in 1890. He was in Johannesburg till 1891, in Zululand till 1894, in Rhodesia till 1904 and subsequently in East London until 1907. He was acting town engineer in 1906–1907.

Gellatly, John, 1862–1935. Gellatly was born in Glasgow, Scotland. In 1904–1905, he was the assistant engineer in the Public Works Department of the Cape Colony. In 1905-1910, Gellantly was engineer-in-charge of the Bongola Scheme in Queenstown. After that, he worked few months for the Public Works Department of Tembuland before the appointment as resident engineer of the Smartt Syndicate Irrigation Works. Gellatly stayed in that position until 1913 when he went to Bethulie and stayed there at least until 1920. Some sources also place him in Ladybrand in 1910–1912. Gellatly died in Pretoria.

Gillespie, John, 1853–1925. Gillespie served a period of apprenticeship under James Barr in 1868–1873. In 1873–76, he was an assistant in the engineer's office of the Caledonian Railway Company. In 1876–1878, Gillespie was in the service of John Mackay, railway contractor, as one of his engineers, on the Wishaw Line contract of the Caledonian Railway Company. From 1878, he had no regular appointment until he was engaged by the Cape Government in 1880. In 1885, Gillespie was appointed as the 1st-assistant engineer on the Kimberley Extension Railway. He was working for the Railways until 1904 when he joined Simkins & Adams in Cape Town. Gillespie was town engineer of Pietersburg in 1907–1908. After this, he was again working as railway engineer until his death.

Good, Harry, 1872–1933. Good was born in Brighton. He learned the trade from his father who was resident engineer for the Romney March district in Kent. Good served as the assistant town engineer of Maidstone for four years before leaving for South Africa in 1894. He was an assistant to Messrs. Beynon and Godfrey of Johannesburg until 1896, when he was appointed resident engineer on the Chimoio-Umtali Extension of the Beira Railway. After completion of the railway in 1898, Good was in charge of the construction work of the Mashonaland Railway until 1901. In 1901–1902, he belonged to the Durban harbour engineer's staff. In 1902, Good was appointed as the assistant town engineer of Johannesburg. He was town engineer of Boksburg in 1904–1913. In 1913–1914, Good was working for South

African Railways in Tzaneen, Transvaal, in 1914–1915 in Vierfontein, Orange Free State and in 1915–1918 in the construction office of the South African Railways, Natal. In 1918–1929, he was working in the irrigation department in Pretoria. In 1929–1933, Good was back in the city engineer's department in Johannesburg, where he died.

Gordon, R. Part-time town engineer of Green Point and Sea Point in 1894.

Gray, W.H., ?–1905. Town engineer of Woodstock in 1899–1900.

Grellert, C. Town engineer of King Williams Town in 1879.

Grey, ?. Town engineer of Port Elizabeth in 1858.

Grey, George Robert, 1848–1928. Grey was born in Bombay, India. He went to school in Scotland and in the United States. Grey trained there as an engineer and then worked in several South American republics. Upon arrival in South Africa, he worked for two years as the assistant borough engineer in Durban before moving to the Transvaal. Grey was town engineer of Johannesburg in 1893. In 1897, he was elected as a member of the town council and continued in this position after the Anglo-Boer War. Subsequently, Grey headed one of the branches of the town engineer's department until his retirement from the municipal service in 1925.

Grubb, Ernest, 1874–1949. Grubb was born in Dublin, Ireland. He served his apprenticeship with a firm of architects and engineers at Blackpool, and afterwards was in practice for himself in the same town for five years before coming to South Africa in 1903 to Port Elizabeth as the architectural and engineering assistant in the office of the town engineer. In 1907, Grubb was appointed clerk of works of Grahamstown, the designation which was soon changed to that of city engineer. He was dismissed when the post was abolished in 1912. After Grahamstown, Grubb moved to Germiston, opened a practice, and later died there.

Hancock, Harry, 1863–1921. Hancock was born in Liskeard, Cornwall, England. He was with Silvanus W. Jenkins as an articled pupil in 1881-1884, after which he served as an assistant to Jenkins for four years. Hancock acted as resident engineer in 1885–1887 on the construction of the line of railway from Gwinear Road to Helston. He prepared the parliamentary plans for the Porthleven Water Supply in 1888. Hancock left Jenkins in March, 1889, for the Manila Railway, and was engaged as district agent in charge of the construction of the Northern Section of the Manila Railway until December, 1892. In 1896–1899, Hancock was in Penzance and in 1899–1903 in Johannesburg. He was town engineer of Klerksdorp in 1904–1917. Hancock left South Africa shortly after 1917, retiring to Liskeard, where he died.

Harrison, Edward, 1860–1947. Harrison was born in Roscommon, Ireland. In 1885-1886, He formed a partnership with F. Upton. In 1888, Harrison was appointed clerk of public works of Pietermaritzburg. In 1893, his designation was changed officially to that of borough engineer and overseer of waterworks. Despite this grander title, Harrison was a land surveyor and not a qualified engineer. In 1896, Pietermaritzburg appointed a qualified engineer and Harrison's designation was changed to that of an assistant engineer. He was dismissed later in the same year. In 1905–1914, Harrison had his own practice in Pietermaritzburg.

Harrisson, James A.G., 1865–?. Harrisson was born in London, England. He was educated at Ely, Cambridgeshire. Harrisson came to Natal in 1890, and was in the service of Natal Colony Railways for three years. He was in Rhodesia for nine years as district railway engineer. Harrisson was town engineer of Potchefstroom in 1904–1912.

Henchman, Humphrey. In 1863–1865, Henchman was working as a clerk on the finance office of the Great Western Railway. In 1866-1868, he served his pupilage in Cochrane, Grove & Co. in Dudley. In 1869–1872, Henchman was employed at general work on the Metropolitan District (Underground) railway in Germany, Hungary and the United States. In 1872–1876, he was manager of the Paragon Works, Leeds. In 1876–1880, Henchman was working for the Cape Government Railways. He was town engineer of Graaff-Reinet in 1881–1884. In 1887–1888, Henchman served as resident engineer and traffic manager of the Perak State Railway, Straits of Malacca. In 1889–1890, he was working as chief draughtsman under Port Elizabeth harbour commission.

Hensham, Chas. Possibly town engineer of Queenstown around 1879–1881.

Heward, Richard Henry, 1855–1934. Heward was born in New Cross, Kent, England. He was town engineer of Green Point and Sea Point in 1899–1914.

Hoggar, Robert, 1815–1863. Hoggar was born in Hadliegh, Suffolk, England. He was town engineer of Grahamstown in 1859–1861. Hoggar claimed to be a duly qualified surveyor and as such had been accepted by the board of commissioners.

Holman, F.J. Town clerk and town engineer of King Williams Town in 1880–1881.

Howells, Daniel Peter, 1880–1953. Howells was born in Neath, Wales in 1880. He got his education and scientific training at Neath British School and Swansea Technical College in 1886–1896. Howells had his pupilage under John Howell, contractor, in 1896–1898. In 1898–1901, he was working under D.M. Jenkins, borough surveyor of Neath. In 1901–1903, Howells was an assistant to J. Patten Barber, borough surveyor of Islington. In 1903–1905, he was an assistant to John Cook, city engineer of Cape

Town. In 1905–1908, Howells was the assistant town engineer of Wynberg. In 1908–1911, he was municipal engineer for Kalk Bay-Muizenberg. In 1911–1925, Howells was town engineer of Benoni and of Port Elizabeth in 1926–28. In 1924–1925, he was the chairman of the African District of the Association of Municipal and County Engineers. Howells was working for Barclay's Bank in 1929–1939. In 1938–1939, he was the president of the South African Society of Civil Engineers. In 1939–1943, Howells worked for the Electricity Supply Commission.

Hughes, George F., 1865–?. Hughes was born in Wales and educated in Lancashire. He came to Cape Colony in 1881. Hughes was district engineer for Pietersburg for twenty years. During this period, he was also acting town engineer in 1907 and in 1912.

Humphris, W.A. Possibly town engineer of Piet Retief in 1909–1914.

Jameson, Frank Walton, 1873–1956. Jameson was born in Durban. He got his general education by tutor and at private school. In 1891–1894, Jameson had his pupilage under John Fletcher, borough engineer of Durban. In 1894–1896, he was an assistant engineer with the borough engineer at Durban. In 1896–1897, Jameson was an assistant engineer to W.H. Radford, Nottingham, England. At this time he took a course at the Technical University of Nottingham. In 1897, Jameson was appointed resident engineer of Bridgeford development scheme. In 1898, he was the assistant resident engineer on Walton-on-Thames sewerage scheme. In 1899, Jameson returned to South Africa, and was appointed waterworks engineer to the Durban Corporation. In 1902, he was appointed borough engineer of Pietermaritzburg. In 1905, Jameson was seconded and appointed technical commissioner by the governor of Transvaal to inquire into the Pretoria Sewerage Scheme and a threatened interdict of the scheme. In 1909, he was appointed town engineer of Pretoria. In 1920–1931, Jameson was city engineer of Kimberley. In 1920, he was also appointed technical member of the Central Housing Board in the Department of Public Health. In 1931, Jameson was town engineer of Krugersdorp. After that, he was working for Central Housing Board until 1948 and for National Housing Commission in 1948–1951.

Jeffries, William James, 1856–1930. Jeffries was born in Ipswich, England. He was educated in Framlingham College, Suffolk and Ipswich Grammar School and articled to W.H. Stranger, Westminster in 1874. Jeffries was the assistant engineer in Granton Harbour, Edinburgh, 1878–1882 and surveyor in Thames Conservancy in 1882–1895. In 1895, he was appointed the assistant city engineer of Cape Town. In 1907, Jeffries was appointed as acting city engineer in which position he served until his retirement in 1914.

Jenkins, George. Town engineer of Newcastle in 1900–1904.

Jones, John E. Acting town engineer of Harrismith from 1908 until at least 1911.

Karlson, August, 1858–?. Karlson got his education at the Swedish Government School, Stockholm in 1867–1875, scientific training at the Technical High School, Stockholm in 1875–1879, and private tuition in 1879–1885. He was an assistant resident engineer on the Swedish Government Railways in 1879–1880. In 1880–1882, Karlson was an assistant resident engineer on the French Government Railways. In 1882–1886, he was resident engineer on bridge construction on the French Government Railways. During 1886–1891, Karlson was chief of the bureau of projects of the Panama Canal and consulting engineer in Paris. In 1891–1892, he was the personal technical assistant to the chief engineer of Bordeaux, E. Gerard. In 1892–1896, Karlson was chief engineer of the survey and bridges of the railway from Komati Poort to Leydsdorp in Transvaal. In 1896–1898, he was chief engineer of the survey of the railway from Pretoria to Pietersburg. In 1898–1903, Karlson was chief engineer and manager of the Pretoria Waterworks Company and in 1899–1902, town engineer of Pretoria. In 1902–1904, he worked as consulting engineer for Pretoria, engaged in complete project for the extension of the Pretoria water supply. From 1904 onwards Karlson was hydrographic surveyor to the irrigation department of the Transvaal. In this capacity, he recommended the building of Hartbeespoort Dam in 1905 and was later responsible for its construction work until 1921.

Kearnley, Geo. A. Acting town engineer of Queenstown in 1901.

Kelly, J. Town engineer of Aliwal North in 1909–1910.

Knox, Edward Baldwin John, 1845–1903. Knox was born in London from Irish parents. He was a pupil of Messrs. John Penn and Sons, Greenwich. In 1862–1865, Knox was an assistant to Henry Boulden and in 1866–1868 the assistant manager and engineer to Croscombe Lead and Chemical Works. From 1868 to the end of 1872, he was an assistant on Sir Joseph Bazalgette's staff at Metropolitan Board of Works and from then to 1876, as the confidential assistant to Thos. E. Harrison, engineer-in-chief, North-Eastern Railway. From 1876 Knox was in private practice in South Africa. He conducted the leading practice in the Cape Colony till 1886. Knox was acting city engineer to Cape Town in 1880–1881. From 1886 to 1892, he was principally engaged in examining and reporting on mining properties in the Transvaal, and was consulting engineer to many mining companies. In 1892, Knox was for a brief period acting town engineer of Johannesburg. In 1893, he was carrying out the Paarl waterworks extensions. Knox died in Johannesburg.

Ladell, Hugh Master, 1880–?. Ladell was born in Ipswich, England. He was educated privately at Norwich, and on completing his scholastic career was articled and served four years on the staff of the city engineer of Norwich. After that, Ladell held the position of the assistant borough surveyor and water works engineer of Tunbridge

Wells for four years. In 1902–1928, he was town engineer of Wynberg. In 1923–1924 and 1937–1938, Ladell was the chairman of the African District of the Association of Municipal and County Engineers and in 1925–1928, 1929–1936 and 1941–1943, the honorary secretary of the same. In 1927–1928, he was the president of the South African Society of Civil Engineers. In 1936–1938, Ladell was sewerage engineer of Umtata.

Laffan, George Bastable, 1851–1919. Laffan was born in Cork, Ireland. He received his training as a civil engineer in Queen's College, Cork, and obtained the qualification of the Queen's University in civil engineering in 1871. Laffan was employed in surveying, building construction, etc., from 1872 to 1875, under Wm. Eve. He was employed as an assistant in the engineer's office to the commissioners of sewers for the City of London from 1875 to 1876. Laffan was employed as the assistant surveyor to the Croydon Local Board from 1876 to 1881, and was borough surveyor and waterworks engineer to the town council of Bridgwater in 1881–1898. He came to Natal in 1898 to fill the post of city engineer in Pietermaritzburg, which he held until 1901. Afterwards Laffan practiced privately in Pietermaritzburg in conjunction with E.J. Wellman. He was a town councillor in Pietermaritzburg between 1901 and 1906 and a founder member of the Natal Institute of Architects on whose committee he served from 1908 until 1911.

Laughton, John. Laughton was born in Victoria, Australia. He came to South Africa in 1890. Laughton was town engineer of King Williams Town in 1893–1897 and Port Elizabeth in 1897–1898. He fought in the Anglo-Boer War, taking part in relief of Mafeking. After the war, Laughton went to Rhodesia and became a town engineer of Bulawayo c. 1903. In the 1910s, he was also a member of the the Bulawayo town council and chairman of a local mining company.

Leitch, Donald Calder, 1853–?. Leitch was born in Wigton, Cumberland, England. He served an apprenticeship (1868–1872) in the shops of the Lancashire and Yorkshire Railway, and attended engineering classes at Owens College, Manchester in 1872–1873. Leitch was an improver in the shipyard and workshops of Messrs. S.H. Morton and Co., Leith in 1873–1875. He studied mathematics, physics and engineering at Edinburgh University in 1875–1876. Leitch was in occasional employment in engineering work in London and Edinburgh in 1876–1879. He was engineering draughtsman in the office of the director of works, Admiralty, in 1879–1887. In 1887–1888, Leitch was the chief assistant engineer at Chatham Dockyard Extension. In 1889–1890, he was in charge of the Admiralty Works at Gosport, and for seven months as the chief assistant to the superintending engineer, then in charge of naval works in Portsmouth and district. In 1890–1894, Leitch was civil engineer in responsible charge of the Admiralty works at the Cape of Good Hope. From 1894 to 1898, he was superintending civil engineer in charge of works at Gibraltar. In

1898–1902, Leitch was the assistant director of the architectural and engineering works in the Admiralty. In 1902–1904, he was town engineer of Johannesburg. In 1904, Leitch was appointed chief engineer of Rand Water Board of which position he retired in 1911.

Lutz, Ernst, 1848–1927. Lutz was born in Klausenburg, Hungary. In 1875, he received a diploma as engineer from Zurich Polytechnic School. In 1875–1876, Lutz was engineer in Rorschach-Heiden railway works. He the worked on the Swiss Nordeast-railway until 1890, when he arrived in South Africa. In 1890–1894, Lutz was railway engineer in Netherlands-South African Railway Company (NZASM). In 1895, he was a secretary for the government commission appointed to report on the water supply of Johannesburg. In 1896–1897, Lutz was town engineer of Pretoria.

Mackie, W.L. Town engineer, town clerk and treasurer of Graaff-Reinet in 1863–1865.

Maden, James, 1842–1931. Maden was born in Stoneford, Haslingden, Lancashire, England. He was self-educated at home and during two quarters at night class. Maden was town councillor of Accrington in 1882–1891. He came to the Cape Colony in 1892 for health reasons. Maden was clerk of works of East London in 1895–1897 and municipal inspector of Claremont in 1899–1901. His title was change to that of town engineer in 1901 and he continued in office until retirement in 1914.

Maden, James, 1879–1930. Maden was born at Accrington, Lancashire, England. In 1886–93, he had general education at Barnley Grammar School. In 1894–95, Maden was studying engineering at the South African College, Cape Town. He did his practical training in 1893–97 under his father, James Maden, clerk of works of East London. In 1897–1900, Maden was the assistant engineer at East London under John Powell. He served during the Anglo-Boer War with General Brabant Horse. In 1902–03, Maden was superintending engineer under J.D. Shannon, new works department, Salt River, Cape Town. In 1903–10, he was borough and hydraulic engineer to the Corporation of King Williams Town. In 1911–12, Maden was divisional engineer, responsible only to O.C. Ormsby, agent to Messrs. George Pauling and Company, contractors for the great Tata Hydro-Electric Scheme, Lonavia, near Bombay, India. In 1912–13, he was deputy chief engineer to the City Improvements Trust of Calcutta. In April 1913, Maden was appointed as chief engineer to the Trust. In 1922–1925, he was with Thos. Cook in Cape Town and in 1925–1930, in Barclay's Bank in London.

Malloch, William Farquhar, 1861–1921. Malloch was born in Scotland. From May 1896 until March 1897 he was mechanical engineer to the Johannesburg Waterworks Co. Some time before this he designed a waterworks scheme for Dundee, Natal. From March 1897 Malloch was engineer and contractor on his own account until appointed superintendent of works of Uitenhage in 1899. He was dismissed in 1905.

Malloch left for Port Elizabeth where he operated as a hydraulic engineer. Later he worked for the municipality of Bethlehem, first as consulting waterworks engineer in 1911–1913 and then as town engineer in 1913–1914. Malloch died in Johannesburg.

Mason, Walter John, 1868–?. Mason was born at Goulburn, New South Wales, Australia. He was educated at St. Stanislaus College, Bathurst and Sydney Grammar School, New South Wales. Mason served articles under G.S. Firth, New South Wales, in 1883. He was engineer to his father for four years on railway construction. Before coming to South Africa, Mason was for ten years in roads and bridges branch of the Public Works Department, New South Wales. He was in the town engineer's department, Port Elizabeth for 3 1/2 years, the last 18 months as chief surveyor. Mason was town engineer of Uitenhage in 1907–1911. In 1911, he was appointed town engineer of Bulawayo.

Mason, William McGeorge. Town engineer of Benoni in 1909–1911.

McKenzie, William. Town engineer of Parys in 1909–1914.

McMaking, Malcolm John, 1880–?. McMaking was born in Portsmouth, England. He was superintendent of works of Uitenhage in 1905–1907. In 1913–1916, McMaking was town engineer of Boksburg and after that worked in the city engineer's department in Cape Town.

McMillan, James Peter, 1867–?. McMillan was indentured in 1883, to P. Walter Meik, for a term of five years in Scotland. His apprenticeship finished, he was engaged with the details of roofs and bridges at Messrs. P. and W. Mclellans for a year, and after doing the parliamentary work of the Forfar and Brechin Railway, entered the office of Messrs. Cunningham, Blyth and Westland. In 1891, McMillan became connected with the Glasgow Waterworks and assisted in getting out plans and schedules of all contracts for the new supply from Loch Katrine during that time. He worked in Glasgow until 1896. In 1897–1899, McMillan was erecting the pumping plant at Van Staadens Gorge, Port Elizabeth. In 1899–1900, he worked for Edinburgh District Water Trust. McMillan was town engineer of Graaff-Reinet in 1901–1903. In 1908–1915, he was working in the Public Works Department in Sydney, and living in Honeybush, New South Wales from 1915 at least until 1923.

Menmuir, Robert William, 1867–1942. Menmuir was born in Selby, Yorkshire, England. He received his professional training in the office of A.C. Turley, from 1882 to 1888. In August 1888, Menmuir entered the office of H. Fowler, Manchester, as an assistant engineer. From November, 1892, he was an assistant engineer on the Failsworth and Gordon Main Drainage and Sewage-Disposal Works. On June, 1893, Menmuir was appointed an assistant engineer, under John Cook, water engineer and borough surveyor to the Lancaster Corporation. In 1900, he went to Ipswich

as deputy borough engineer. Menmuir came to South Africa in 1901 to act as town engineer to the Woodstock municipality and left shortly before the amalgamation with Cape Town in 1914. After the amalgamation, he entered private practice as a consulting engineer largely dealing with water supplies in many parts of the country; the principal ones being water schemes for Malmesbury, Uitenhage and George. In 1917–1918, Menmuir was the president of the South African Society of Civil Engineers.

Miles, William Henry, 1857–1893. Miles was born in Shaftesbury, England. He was articled to an architect and civil engineer W. James Saffett, district and town surveyor for Shaftesbury. Miles was in private practice in King Williams Town and Port Elizabeth in 1878–1881 and municipal architect and engineer to the Port Elizabeth municipality in 1881–1886. In 1886–1889, he had practice in Bournemouth, England as an architect and civil engineer. Miles was town engineer of Johannesburg in 1889–1892. He died in Johannesburg.

Moodie, George Pigot, 1829–1891. Moodie was born in 1829 in Grahamstown. He was town surveyor and engineer of Pietermaritzburg in 1864–1866. In 1867, Moodie was admitted as a land surveyor in the Zuid-Afrikaanse Republiek. In 1870–1872, he represented Wakkerstroom District in the Volksraad. Moodie was surveyor-general of the Republic in 1881–1884. In 1886, he returned to the Cape Colony and in 1889–1890 he sat in the Cape Legislative Council. Moodie died in Rondebosch, where he was member of the town council.

Mumford, John Phillips, 1858–?. Mumford was born in Llanrug, Carnarvonshire, Wales and was educated at Rugby School and Trinity College. He was articled to an architect, John Thomas in Carnarvon and was for some year's assistant surveyor under Ordnance Survey and architect on the Earl of Shrewsbury's Estate at Ingestre, Stafford. Mumford came to South Africa in October 1889, practising for his own account in Carnarvon, Cape, for some time. He appears to have left the Cape for Natal about 1890 since he was recorded working as an architect and surveyor in Durban from about 1890 to 1903. Mumford left Natal on his appointment to the post of town engineer, Kroonstad, Orange River Colony, in 1903. He resigned the following year but remained in Kroonstad, developing his considerable interest in music and winning 12 first prizes out of 14 competitions with choirs and bands at the National Eisteddfod held in Johannesburg. Mumford became well-known as a teacher of singing and voice production, was elected a member of the Conservatoire of Music in London and finally qualified as a Licentiate Band Master.

Newsam, George Frederick, 1846–1890. Newsam was born in Leeds, England. He was appointed town clerk of East London in 1875. In 1881, Newsam was appointed

also town engineer. After 1882, he was only town engineer until the position was abolished in 1885. Newsam died in Klerksdorp.

Nisbet, Robert Wilson, 1873–1958. Nisbet was born in Scotland. He was town engineer of Newcastle in 1909–1912 and died in Vereeniging.

Niven, James Just, 1874–1939. Niven was born in Dundee, Scotland. He got his general education at Harris Academy, Dundee and Heriot Watt College, Edinburgh. In 1892–1895, Niven received his practical training from R.C. Brebner. During 1895–1901, he was an assistant engineer on the construction of the Charing Cross Station, Glasgow Underground Railway; East Fife Central Railway; Morar Section of the Fortwilliam to Malaig Extension of the West Highland Railway; Cape Flats Railway, near Cape Town; and Cape Town Sewerage and Stormwater Drainage. In 1903–1908, Niven was in private practice in Cape Town as a consulting engineer and surveyor. In 1909–1925, he was city and borough engineer of Pietermaritzburg.

Northfield, ?. Possibly town engineer of Kroonstad before 1903.

Olive, William Thomas, 1852–1935. Olive was born in Cheltenham, England where he completed his schooling. In 1868, he went through the prescribed course for, and obtained, the certificate of proficiency in engineering science at Glasgow University. Olive served a regular pupilage to Messrs. Bell and Miller. On leaving, he entered the service of J.F. Blair and then with Messrs. R. Young and Son, Forth and Clyde Railway. In 1874–1875, Olive was engaged with J. Carrick, master of works, Glasgow. In 1875, he went to Canada, as the secretary and assistant to a board of engineers appointed to examine and report on the Improvement of Montreal Harbour and the River St. Lawrence. In 1878, Olive was selected for the leading assistantship in the engineering department to J.G. Lynde, city surveyor, Manchester. In February 1889, he went to Rosario, Argentina, as deputy resident engineer on main drainage works. In October 1889, Olive became resident engineer of the Manchester. In 1895, he was appointed city engineer of Cape Town, which position he resigned in 1896. After this, Olive set up a private consultancy. He died in Port Elizabeth where his son was harbour engineer.

Oliver, P. Part-time town engineer of Green Point and Sea Point in 1887–1893.

Palliser, William Arthur, 1870–1942. Palliser was born in Hartley, Wintney, Hampshire, England. He was educated in Liverpool College and Victoria University, Liverpool. In 1896–1898, Palliser was surveyor in Featherstone. He came to Queenstown as town engineer in 1899. In 1901, Palliser was appointed to he same position in East London. After resigning there in 1902, he was engineer in charge of waterworks, sewerage, etc., of South African Corps headquarters staff. During the Anglo-Boer War, Palliser had been attached to Royal Engineers of 3rd Div. In 1908,

he was hydraulic and consulting engineer and general manager in South Africa for the Neuchatel Asphalte Co. In about 1914, Palliser developed a water supply scheme for Heidelberg, Cape Province.

Peet, Hastings FitzEdward, 1865–1935. Peet was born at Arabella, Kerry County, Ireland. After completion of scientific training in 1886, he immigrated to Victoria, Australia, and was employed there on construction of the Horsham, Matimuch, Sandhurst and Heathcote railways. In 1889, Peet returned to Ireland, and was apprenticed to G.A.E. Hickson, as a paid apprentice, and subsequently, an assistant. In 1897, he immigrated to South Africa and was employed as resident engineer on the Burgersdorp Waterworks. In 1898, Peet was appointed city engineer of Bloemfontein. In 1907–1908, he was the the honorary secretary of the African District of the Incorporated Association of Municipal and County Engineers. After resigning in 1908, Peet went to London and in 1914, to Dublin. He died in Rathdum, Ireland.

Penketh, Peter, 1816–?. Penketh was born in St. Helena, Lancashire, England. He came to Cape Town before 1845 as a foreman of works in the Royal Engineers and rose to clerk of works before going into private practice in 1854. Penketh was town engineer of Cape Town in 1858–1872. After retirement, he returned to his native Lancashire.

Pike, Alfred, 1878–1948. Pike was born in Audenshaw, Lancashire, England. He was educated at Audenshaw, British and Denton M. Schools. Pike was apprenticed in the building trade. He studied with success building construction, engineering and surveying geometry, at Manchester and Higginbottom Technical Schools, Ashton-under-Lyne. Pike was engaged with Spencer and Cook, engineers and went to Russia, France and Italy to superintend erection of machinery. He came to South Africa in 1903. Pike was engaged as general foreman to Redman & Thomas, contractors, Volksrust. In 1904–1921, he was town engineer of Volksrust. In 1921–1922, Pike was town engineer of Umtali in Rhodesia and in 1924–1939/40, town engineer of Witbank in Transvaal.

Pilkington, Woodford, 1831–1913. Pilkington was born in Trinidad where his father was civil engineer and surveyor-general from 1821. He was trained by his father as a civil engineer in Sierra Leone. In 1848, his father was appointed civil engineer of Cape Colony and Woodford went with him. He then acted as resident engineer for the construction of Cape Recife Lighthouse before settling in Cape Town. There Pilkington was town engineer in 1854–1855 as well as carrying out consultancy work. He then went for 2 ½ years as engineer-in-chief to British Kaffraria. In 1860, Pilkington was appointed the assistant colonial engineer and commissioner of roads in the Eastern Province. He resigned in 1865 and around 1870 returned to London in private practice. Pilkington remained there until about 1878 when he became

resident engineer for the Quebec Harbour improvements. In 1884, he went to Boston to work on the harbour there. Pilkington then obtained a position as resident engineer on the harbour of Fortaleza in Ceara, Brazil. He finally returned to London c. 1893, and retired c. 1899.

Powell, John, 1868–?. Powell was town engineer of East London for the first time in 1897–1900. In 1900, he resigned and joined a local private company. In 1907, Powell was again appointed as town engineer. He retired in 1927.

Ransome, George, 1852–1910. Ransome was born in Selby, Yorkshire, England and educated at Westminster School. He was apprenticed to J. McVicar Anderson in London and studied at the South Kensington Schools for seven years. In 1880, Ransome applied for associate membership of the Royal Institute of British Architects and signed the papers in Cape Town where his address was c/o Public Works Department. In 1884, he set up independent practice. At the same time, Ransome was part-time town engineer of Green Point and Sea Point in c. 1884–1887.

Rees, Charles. Town engineer of Cape Town in 1873–1875, acting town engineer in 1875–1876.

Reid, Arthur Henry, 1856–1922. Reid was born in Plymouth, England. He was educated at Grammar School, Plymouth, and afterwards served articles with his father. Reid went to London to complete his studies, and entered the service of J.T. Chappell, building contractor. During this period, he attended the science courses at King's College, and in 1876 was engaged as a managing assistant by S.I.R. Templer of Teignmouth. Reid came to Cape Town in 1877, and entered the municipal service. He was promoted to the assistant city engineer in 1878. In 1879, he was appointed city engineer of Grahamstown. Reid retired from public service in 1882, and started in general practice at Port Elizabeth, continuing there until 1887, when he left for Johannesburg. He was one of the first architects to open an office on the Rand. In 1893–1894, Reid was the president of the South African Association of Engineers and Architects.

Richards, Charles Henry. Town engineer of Pietermaritzburg in 1882–1883.

Riley, John, 1871–1962. Riley was born in Accrington, Lancashire, England. He was articled to engineer of the County Borough of Burnley and after completing his pupilage held appointments in Burnley, Leicester and Birmingham. After that, Riley served three years as the chief assistant engineer in a firm specialised in sanitary engineering. In 1903, he came to Cape Town as the assistant engineer on the main drainage works of the city. After these were completed in 1905, Riley was appointed the chief assistant engineer of Bloemfontein. In 1906–1907, he was town engineer of Germiston. In 1907–1911, Riley was sewerage engineer of Johannesburg. In 1911–

1912, he was working for the Rand Water Board. From 1912 until around 1920, Riley was in the irrigation department in Pretoria. After that, he was the assistant to the city engineer in Bloemfontein until 1922. In 1926–1931, Riley was in the chief civil engineer's office of the South African Railways in Johannesburg. In 1941–1944, he was working for Umgeni Water Works. In 1944–1946, Riley was acting town engineer in Uitenhage and in 1946–1947 in the town engineer's department in Springs.

Robarts, William Emery, 1853–1903. Robarts was born at Verulam, Natal where he learnt carpentry and land surveying before leaving to study in England. He served articles with an architect in London. Robarts returned to Verulam about 1870. In 1877, he was appointed surveyor of Durban. Robarts practised as a surveyor and architect in Durban from 1882. In 1882–1887, he served on the Durban city council and was mayor in 1886–1887. Robarts was consulting borough engineer of Durban in 1888–1889. In 1901, he co-founded the Natal Institute of Architects and acted its first president until his death.

Schooling, W.J., 1873–?. Schooling was born in Victoria, Australia. He was educated in Prospect House Academy, Kyneton. Schooling was articled to Messrs. Bruford and Braim, Melbourne. He served in the Public Works Department, Western Australia, Melbourne, in metropolitan board of works and in lands department, Victoria. Schooling passed municipal engineers' examination of Victoria and federal land surveyors' examination of Australia. He came to Orange River Colony in 1902, and was town engineer of Harrismith in 1903–1908. It appears that he returned to Victoria, Australia after this.

Scott-Bayley, T., ?–1903. Town engineer of Green Point and Sea Point in 1898.

Small, G.H. Town engineer of Port Elizabeth in 1899–1902.

Smith, ?. Acting town engineer of Kroonstad in 1904–1905.

Smith, George William, 1838–1931. The eldest son of W Smith, a chemist of Glasgow, Smith was indentured to William Robertson, civil and mining engineer, Glasgow, for five years from 1853. For the last three years of his articles he worked as an assistant engineer with the Caledonian Railway. Smith came to South Africa in 1858 in order to fill an appointment at the Cape Town – Wellington Railway, under Thomas Merchant and latterly Marcus Smith, as an assistant engineer. In 1864–68, he was in professional practice at Port Elizabeth, as partner with Robert Pinchin. Smith also acted as a land surveyor in Natal, qualifying as a land surveyor of Natal Colony. He served as town engineer and municipal surveyor, Port Elizabeth in 1867–1868. In 1869–70, Smith was engaged generally in the professional branch of the Lands and Public Works Department of the Colony of Victoria, Australia. In 1871–72, he was engineer to the Slotts Iron Company, Lanarkshire, for the setting

out and construction of their new works at Loanhead, East Lothian, Scotland. In 1873–80, Smith was junior partner of William Robertson in Glasgow. In 1881, he again joined Pinchin in partnership, at Port Elizabeth, and on Pinchin's death in 1888, took over the practice.

Somerville, R.W.B., ?–1918. Somerville was an Australian who came to South Africa to fight in the Anglo-Boer War. He stayed in South Africa at first serving in the Durban customs department in 1902–1903 and then as clerk to the assistant district engineer of the Public Works Department in Pietersburg in 1903–1904. Somerville was town engineer of Pietersburg in July–September 1904. Later he returned to Australia and was killed in the First World War in 1918.

Stewart, George Alexander, 1878–1951. Stewart was born at Fochabers, Morayshire, Scotland. He was educated at Milne's Institution in Scotland in 1883–1894. Stewart was trained as a civil engineer under William Drysdale Lang of Kirkaldy in 1894–1897. He was the assistant engineer to Lang in 1897–1898. In 1898–1901, Stewart was resident engineer, waterworks, Kirkaldy and Dysart. In 1901–1902, he was the chief assistant engineer to Lang. In 1902–1903, Stewart was the second resident and engineer of design, Pietermaritzburg Waterworks. In 1903–1904, he was resident engineer at the Bloemfontein Waterworks and in 1904–1905, acting city engineer. In 1905–1906, Stewart was resident engineer, waterworks, and engineer-in-charge, sewerage, for Pietermaritzburg Corporation. In 1906–1907, he was in private practice as consulting engineer. In 1907–1908, Stewart was the assistant engineer of Johannesburg. In 1908, he was appointed city and electrical engineer of Bloemfontein where he stayed until 1920. After this, Stewart continued to act as a consultant on various works in Johannesburg and Bloemfontein and was later superintendent of the design and construction of the Vaal River Barrage Gate as a director of Blaine & Co. He undertook numerous projects with William Ingham and later with John Hawkins consulted on the Churchill Water Scheme near Port Elizabeth. Stewart designed the Howieson's Poort Dam in Grahamstown. He died in Johannesburg.

Stewart, Thomas, 1857–1942. Stewart was born at Craigend, Perthshire, Scotland. He was apprenticed in 1873–1876 to D.H. Halkett, civil engineer, Alyth, and afterwards was his assistant for six months. Stewart attended professor Thomson's class for civil engineering at Glasgow University in 1876–1877, and lectures on mathematics, natural philosophy, applied mechanics, chemistry (theoretical and practical), and geology, at Anderson College and the College of Science and Art, Glasgow, in 1877–1881. He was also an assistant to James M Gale, engineer of the Glasgow Waterworks. In 1881–1882, Stewart was engaged in the office of J.W. Barry, Westminster. In December 1882, he was appointed an assistant to J.G. Gamble, hydraulic engineer to the Cape Colony. Stewart had charge of the department in 1885–1886. He was engineer of Cradock Water-works in 1886–87. During 1889 and 1890, Stewart

carried out surveys and investigations for a storage reservoir on Table Mountain, for Wynberg. He was an engineer for storage reservoir and filter-beds for Port Elizabeth in 1890–1893. In 1893, Stewart was appointed also consulting engineer to the Johannesburg Waterworks. In 1896, he carried out some gauging at the Uitenhage Springs. As a private engineer, Stewart designed Wynberg waterworks, all the Table Mountain reservoirs, Muizenberg reservoir, Steenbras waterworks as joint engineer, the Zuurbekom waterworks for Johannesburg, and water supply and sewage works for many other towns in the Cape Colony and Rhodesia. In 1914, he designed a water supply scheme for Beira, in Portuguese East Africa. Stewart was also in 1898 the first council member of the British Institute of Civil Engineers to represent South Africa. In 1904–1905, he was the president of the Cape Society of Civil Engineers.

Swallow, James Stuart, 1849–1890. Swallow served a pupilage in 1865–1869 to Thomas Raper, borough engineer, Scarborough. From January, 1869, to March, 1870, he was the assistant borough engineer of Scarborough, in charge of town drainage works. In 1870–1873, Swallow was an assistant to G. Wells Owen, engineer to Severn Bridge and Railways, engaged in surveying and in designing various railway works in South Wales. In 1873, he entered the service of the Government of the Cape of Good Hope, and was employed, at first, as an assistant engineer on the Cape Government Railways, being made, in 1875, acting district engineer on the Midland North Eastern System, and further advanced, in 1876, to district engineer on the same system. From March, 1881, to 1882, Swallow was city engineer of Cape Town. He resigned in 1882, and was re-appointed to the Government Railways, as district engineer in charge of construction works on the Midland system. In 1884, Swallow returned to England. After a short stay there, he went to India as engineer on the Southern Mahratta Railway, returning England on the completion of the works in 1888. Shortly after, Swallow went to Uruguay in the employment of the contractors for railways in that republic. He died at Rocha, Uruguay, after a short illness.

Tennant, James, 1839–1903. Tennant was referred to in an article in "The Lantern" newspaper of 9.11.1880 as a veteran soldier, who has won 3 medals, for service in India during the mutiny of 1857–1859, in China and long service and good conduct generally. He was in the Royal Engineers when he was married in Cape Town in 1862. After that, he went and worked first in England on the "Thames Fortifications" and later on a project in Curragh, Ireland. Tennant returned to the Cape in 1875 and was Cape Town city engineer in 1876–1880. In 1879, he went off to fight in the Basotho wars in charge of the Volunteer Engineers. Upon his return from the front Tennant ran his own business in civil engineering, surveying and architecture in Cape Town. He again worked for Royal Engineers and designed the Drill Hall, which was inaugurated in December 1885.

Ter Horst, William Antoon, 1867–1952. Ter Horst was born in Amsterdam, Holland and died in Pretoria. He was town engineer of Heidelberg in 1904–1907 and town clerk from 1908 until at least 1922.

Wallace, Herbert Alexander Craig, ?–1939. Wallace was trained in London and came to South Africa to work as an architectural assistant in the Cape Town municipality. He later became the chief assistant architect to the Kalk Bay-Muizenberg municipality. After a few years at the Cape, Wallace was appointed the chief assistant architect to the Bloemfontein town council. He was appointed as the assistant engineer for Bloemfontein in January 1906. Wallace was appointed city engineer in 1908 but resigned after a few months because of the strain and returned to his former position as an assistant engineer. He resigned in 1923. In about 1925, Wallace appears to have set up a practice for his own account in Bloemfontein. He also formed a partnership with G.A. Stewart that lasted from 1928 until about 1932.

Waller, Arthur Herbert, 1867–?. Waller was born at Brighouse, Yorkshire, England. He was educated in Eastrick Grammar School and Bradford Technical College. Waller served a pupilage in 1883–1886 under A.E. Preston. In 1886–1888, he was engaged at the Guiseley Sewerage Works, Horsforth Water-works, Yeadon Water-works, and Clitheroe Corporation Water-works. In 1888–1890, Waller was engaged at the Cross Roads (Keighley) Sewerage and Disposal Works, under Preston. In 1890–1891, he was engaged as the 1st-assistant on surveys for the improvement of gradients and curves on certain sections of the main line, Natal Government Railways. In 1891–1896, Waller was an assistant to John Fletcher, borough engineer of Durban. He was borough engineer of Pietermaritzburg in 1896–1898. After this, Waller returned to England but found out that the weather was too cold for him and returned to South Africa in 1899. He was again the assistant borough engineer for Durban until 1912. From 1912 until at least 1914, Waller was the assistant engineer in Beira and Mashonaland Railways. In 1916–1919, he was town engineer of Bulawayo in Rhodesia. In 1920–1925, Waller was town engineer of Graaff-Reinet. In 1925–1926, he was working for divisional council of Uitenhage and in 1927 in Roan Antelope Copper Mine, in Ndola, Northern Rhodesia. In 1928–1931, Waller was town engineer of Gwelo in Rhodesia.

Webb, R.S. Town clerk and town engineer of King Williams Town in 1862–1869, also treasurer in 1862–1865.

Webster, Richard Arthur, 1874–?. Webster was born in Loftus-in-Cleveland, Yorkshire, England. He was educated in Coatham Grammar School, Redcar, and had science classes in Middlesborough High School. In 1891–1895, Webster worked on Tees Side Iron & Engine Works, Co. ltd., Middlesboro. In 1895–1896, he was chief draughtsman, Clarke's Crank & Forge Co., Lincoln. In 1896–1899, Webster

was resident engineer of Doolaham Tea Co., Assam, India. In 1899–1903, he was an assistant engineer in the Public Works Department of the Cape Colony. In 1904–1914, Webster was town engineer of Krugersdorp. In 1914–1916, Webster was consulting engineer in Cradock. In 1916, he returned to England and was night works superintendent of George Kent Ltds, Luton.

Westhofen, Wilhelm, 1842–1925. Westhofen was in 1857–1860 in various mechanical engineering establishments in Mainz. In 1861–1862, he studied at the Polytechnic School at Carlsruhe. After that in 1863–1865, Westhofen was employed as an assistant in various large engineering establishments at Cologne, and in 1865–1866, he was chief draughtsman at a mechanical engineer's establishment at Mannheim. In 1867, he was in the service of different engineers in London. In 1868-1882, Westhofen was in the office of T.R. Crampton. In 1882-1890, he was engaged as an assistant engineer upon the Forth Bridge Works. In 1891, Westhofen proceeded to South Africa, under engagement by the colonial government. In August, 1892, he accepted the position of head of the engineering branch of the Public Works Department, Cape Town, comprising all works in connection with harbours, lighthouses, roads and bridges. Westhofen stayed in this position until 1906. He worked as consulting engineer for Kalk Bay from October 1906 to September 1907. In 1907–1908, he was the president of the Cape Society of Civil Engineers.

Wicksteed, John Hamilton, 1851–1881. Wicksteed was born in Leeds, England. In 1865, he was sent to the University College School of London. Two years later Wicksteed was articled to Edward Filler of Leeds, with whom he remained as a pupil and assistant for ten years. He was appointed in 1877 as waterworks engineer in charge of the construction of the Van Staadens Water Supply Scheme in Port Elizabeth. On near completion of the scheme Wicksteed was promoted to town engineer in 1881 but retired and committed suicide shortly afterwards.

Wright, R.W. Possibly town engineer of Queenstown around 1891.

Wynne-Roberts, Robert Owen, 1864–1935. Wynne-Roberts' father was gas manager at Llandudno, and under his tuition he was educated as a gas engineer. In 1882, he was appointed the assistant gas, water, and sanitary engineer of Llandudno, under T.T. Marks. In 1889, Wynne-Roberts was appointed borough surveyor of Carnarvon, and in 1894 borough surveyor of Oswetry. In 1898–1901, he was city engineer and in 1901–1906 water engineer of Cape Town. In 1906, Wynne-Roberts returned to England and stayed in London until 1912 when he went to work in Canada. He died in Toronto.

Younger, James, 1881–1957. Younger was born in Scotland. He came to South Africa in 1902 to work as an engineer for Camps Bay and Oranjezicht Estate in Cape. After that, Younger was engaged by the Vrede municipality to carry out their water

scheme. He was town engineer of Pietersburg in 1905–1907. In 1908–1911, Younger was engineer to General Council of Transkei in Umtata. In 1911–1914, he was in the Public Works Department in Bulawayo. Younger made a long career as a municipal engineer; he was town engineer of Krugersdorp in 1914–1919 and again in 1931, of Brakpan in 1919–1921 and of Vryheid in 1925–1926.

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The first town engineers in the area of current South Africa were appointed in the 1850s in Cape Town, Grahamstown and Pietermaritzburg. This book examines these first town engineers and their successors until the formation of the Union of South Africa in 1910. The focus of the study is on the engineers themselves; who were they; what their background was; where they came from and where they went. It is not so much about what they did but what their relationship with town councils and other municipal decision makers was. The study looks also at the appointment process and the reasons why municipalities decided to appoint town engineer at the first place.

The study constructs first the chronological sequence of events and then looks at the various aspects systematically. From these analyses is built a picture of a municipal official with a precarious position at the mercy of money-minded town councillors. In many cases town engineers were made scapegoats of unpopular decisions made by councillors. Only in a few cases could a town engineer survive these confrontations.

Although the book deals with engineers, reading this book does not require any special knowledge of engineering. It is aimed to those who are interested in the working of the municipal government and the roles of individual officials in it.